

ChemDash Lite & Pro

USER MANUAL.

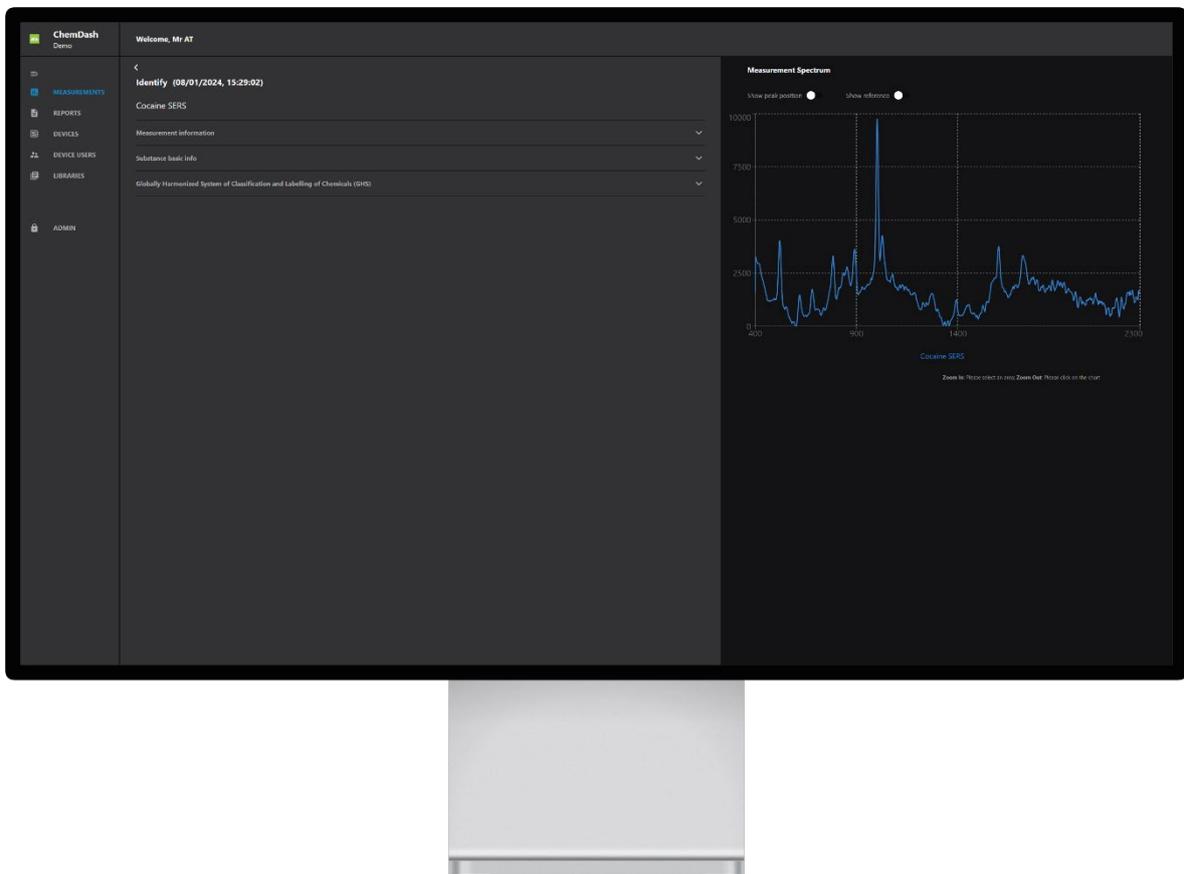


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ChemDash User Manual

1. INTRODUCTION

- ChemDash is a software for Serstech Raman Spectrometers towards a powerful solution for chemical intelligence. ChemDash is the perfect tool for storage, view and management of data including both libraries and measurements. ChemDash also offers the ability to gather and share information about substances, update one or many instruments. Specifically, ChemDash offers the following main features:
- The User can connect to the instrument via Wi-Fi connection or via USB cable to the PC for fast and local management of measurement data.
- The User can locally manage instruments, monitor their status, configure, and manage their instrument users.
- The User can also manage all Raman measurements made with the instruments which will be automatically uploaded to the PC as soon as they are connected. The spectra will be visible in the Data section for further work.
- The User can manage and tailor spectral libraries according to their needs. The User can build its own spectral reference libraries and download them for use on selected devices. Libraries can be built from any combination of User owned data (instrument measurements).
- Last, but not least, the User can manage and administrate the personal account and the accounts of other users, their privileges and the system logs, licensing, and case reports.

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2. SYSTEM REQUIREMENTS

For the system to be properly installed and work, the user must know the following system requirements:

- Processor: Intel or AMD processor with 64-bit support, 2GHz or faster
- Operating system: Windows 10 (64-bit) Version 1903 or later
- RAM: 4 GB (Recommended 8 GB or more)
- Hard Disk space: 10GB of available hard disk space, additional free space is required during installation and sync
- Monitor resolution: 1024x800 display or greater

3. CONNECT THE INSTRUMENT TO CHEMDASH

Connect via USB Cable

To connect the device to the ChemDash application using the USB cable, you must connect them with the USB cable provided in the package.

Please note that the instrument and ChemDash communicate via port 9093 and some fire walls need to be configured to allow traffic on this port.

If you get any error messages about

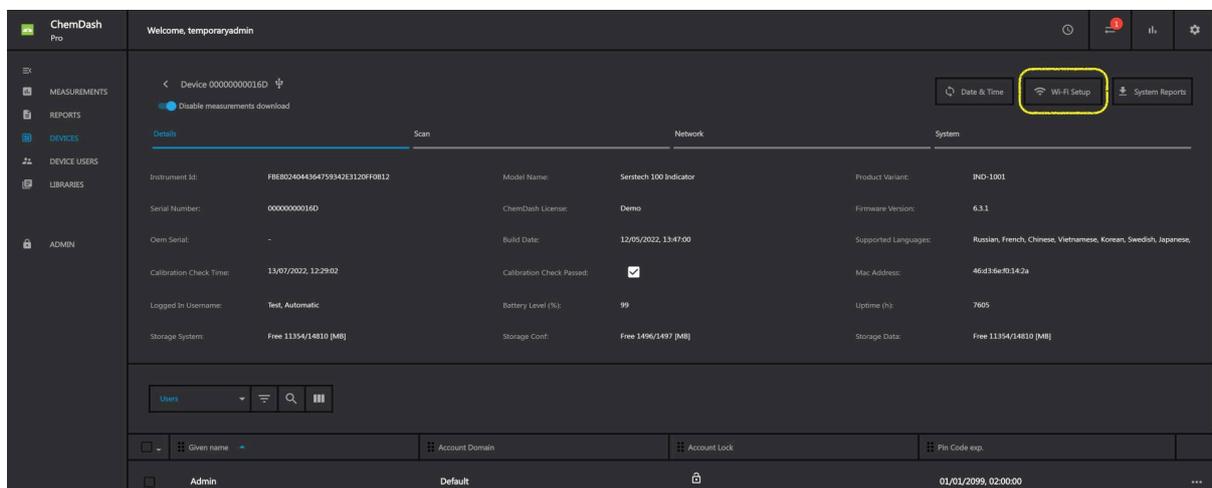
communication via port 9093 then its most likely that your PC firewall needs to be configured to allow traffic via port 9093.

If your connection was successful, the “connected” symbol will appear next to the device name.

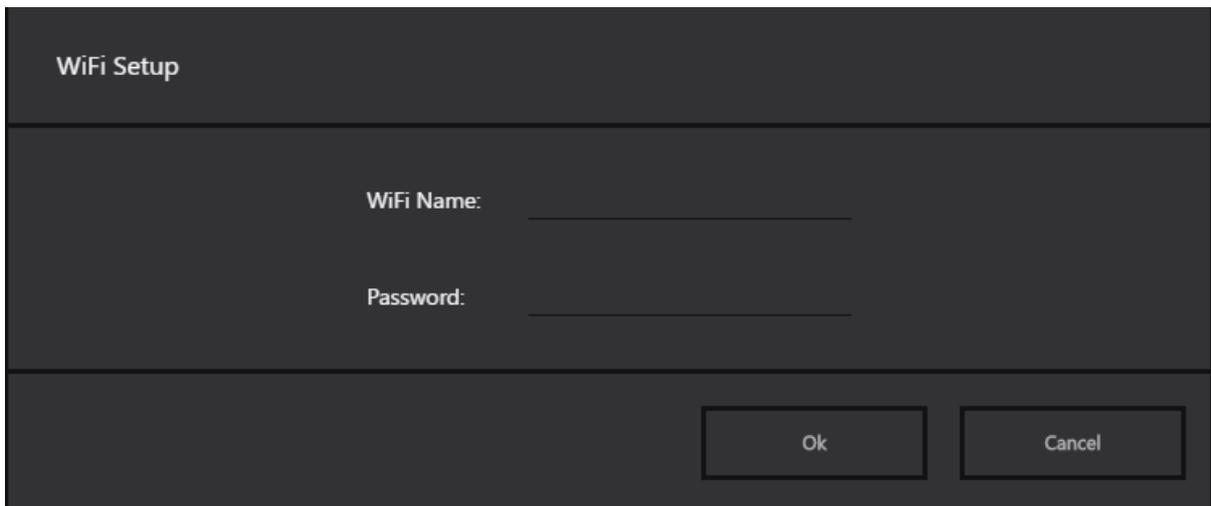
3.1. CONNECT VIA WI-FI

To connect the instrument using a WiFi connection:

1. Start ChemDash
2. Connect the instrument via the USB cable, turn it on and log in as admin.
3. Go to Settings on the device and then to Wi-Fi and activate it.
4. Go to Devices section, select the instrument you have connected and click on it so that the details are displayed.

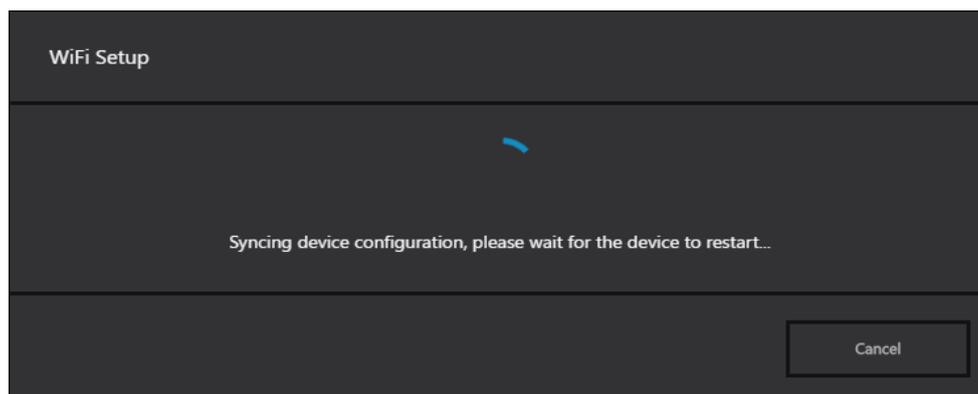


5. Click on the “Wi-Fi setup” button.
6. Fill in the Wi-Fi name and password



The screenshot shows the 'WiFi Setup' dialog box. It has a dark background with white text. The title 'WiFi Setup' is at the top left. Below the title, there are two input fields: 'WiFi Name:' and 'Password:'. At the bottom right, there are two buttons: 'Ok' and 'Cancel'.

7. After the setup it is done, the information needs to be sent to the instrument. Sync the instrument with ChemDash, by clicking on the Sync icon.
8. The instrument will now automatically restart. Remove the USB cable and insert the Wi-Fi adaptor. A message pops up and shows that the device was connected.

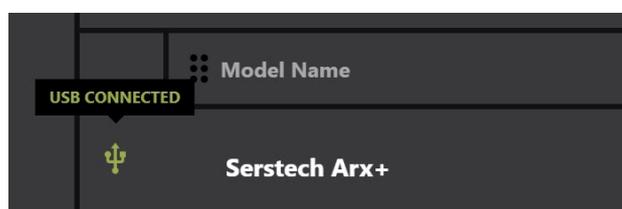


Important to note that when the instrument goes into sleep mode, the wireless connection is lost.

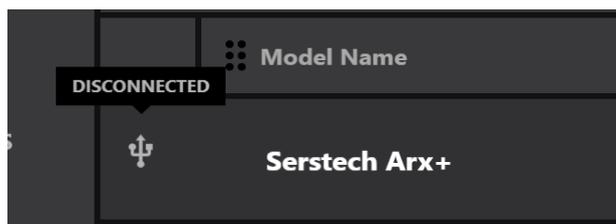
3.2. CONNECTING TO CHEMDASH - DATA SECURITY

Before any data is transmitted to ChemDash, a user with “ChemDash Connection Privilege” must have logged in the instrument.

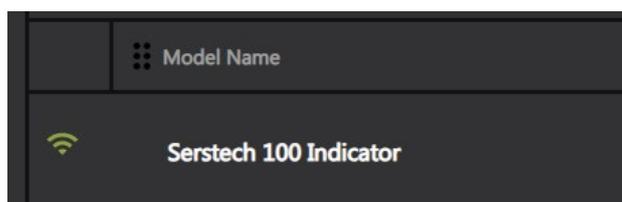
If the instrument is connected, the following symbol will be displayed in the Devices section:



If the instrument is disconnected, there will be a pop-up announcing that, and the symbol displayed will change:



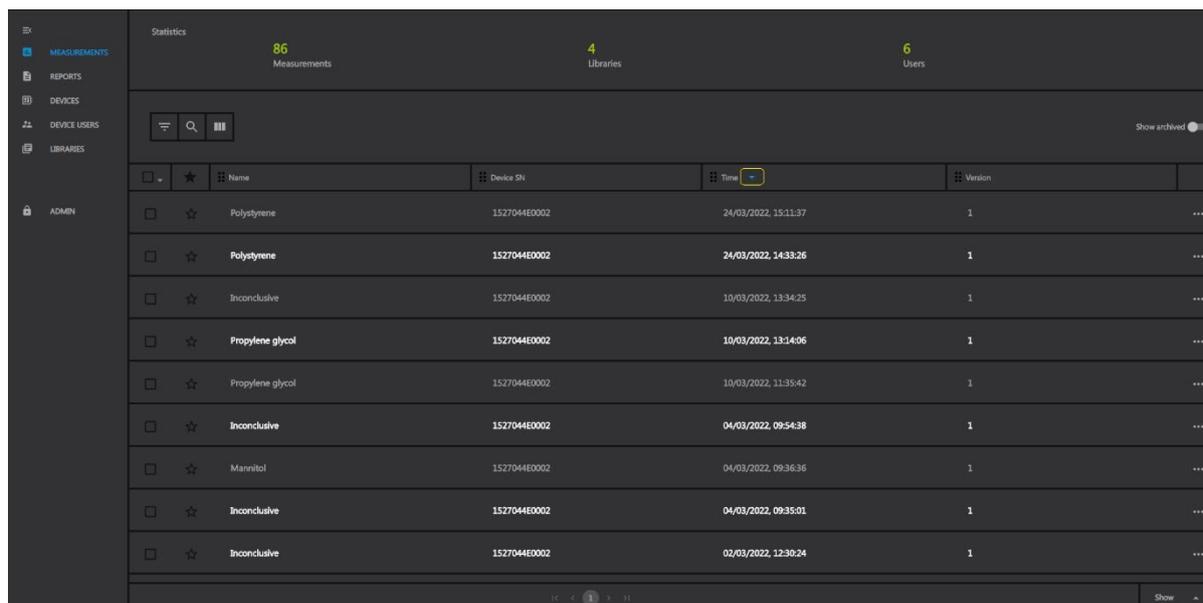
Note that, if the instrument is connected via Wi-Fi, the icon will be different:



4. MEASUREMENTS MANAGEMENT

Measurements are automatically copied to ChemDash from the device when the instrument is connected to ChemDash.

Measurements uploaded to ChemDash from all instruments are available inside the Measurements section, on the menu on the left side. The user has the possibility to sort the items on every column (ascending/descending) by clicking the  symbol visible next to every header.



The screenshot shows the ChemDash interface. At the top, there are statistics: 86 Measurements, 4 Libraries, and 6 Users. Below this is a table of measurements. The table has columns for Name, Device SN, Time, and Version. The 'Time' column is highlighted with a yellow box. The table contains 10 rows of measurement data.

	Name	Device SN	Time	Version	
<input type="checkbox"/>	Polystyrene	1527044E0002	24/03/2022, 15:11:37	1	...
<input type="checkbox"/>	Polystyrene	1527044E0002	24/03/2022, 14:33:26	1	...
<input type="checkbox"/>	Inconclusive	1527044E0002	10/03/2022, 13:34:25	1	...
<input type="checkbox"/>	Propylene glycol	1527044E0002	10/03/2022, 13:4:06	1	...
<input type="checkbox"/>	Propylene glycol	1527044E0002	10/03/2022, 11:35:42	1	...
<input type="checkbox"/>	Inconclusive	1527044E0002	04/03/2022, 09:54:38	1	...
<input type="checkbox"/>	Mannitol	1527044E0002	04/03/2022, 09:36:36	1	...
<input type="checkbox"/>	Inconclusive	1527044E0002	04/03/2022, 09:35:01	1	...
<input type="checkbox"/>	Inconclusive	1527044E0002	02/03/2022, 12:30:24	1	...

On the top, the User can view the statistics (in green numbers) related to the measurements made and saved in ChemDash, together with libraries and users by clicking the Statistics symbol .

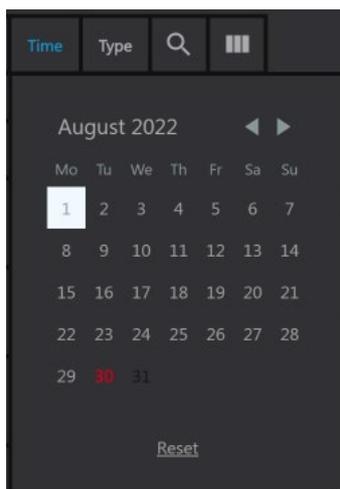
4.1. FINDING MEASUREMENTS

Filtering measurements

By clicking on the filtering icon  different options are displayed. They are: Favorite, Name, Device SN, Time, Version, Type and Session number.

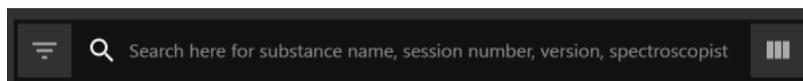


Filtering using the time option allows a time range for the measurement to be set through a drop-down calendar:



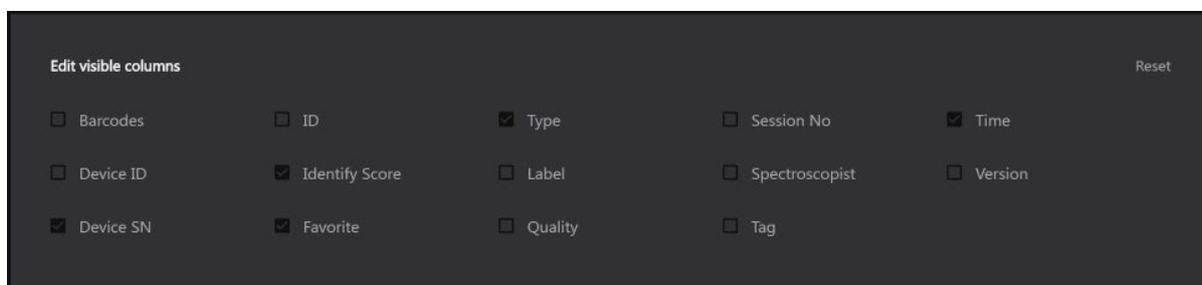
4.2. SEARCHING FOR MEASUREMENT

By clicking on the search icon, below, it is possible to search directly based on a specific term, 



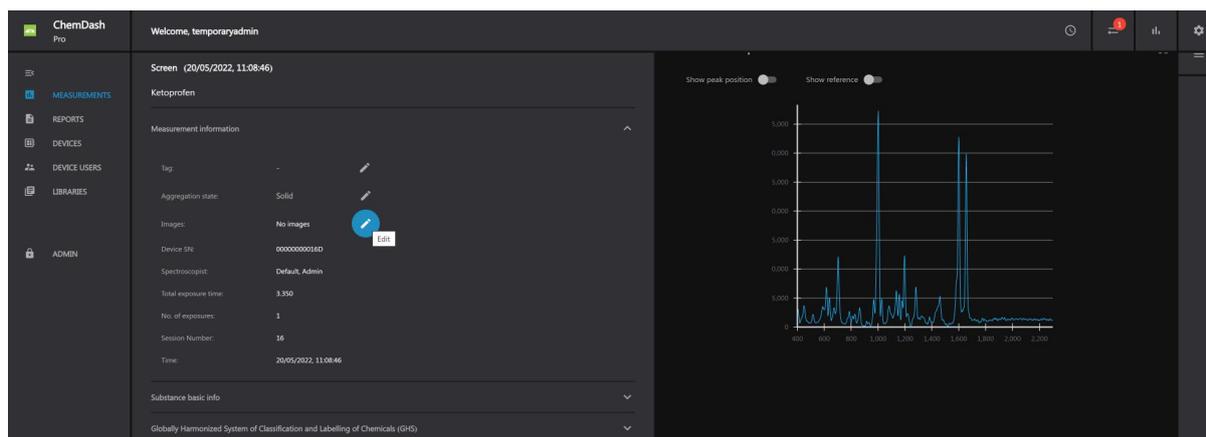
4.3. DISPLAY COLUMN CONTENT

By clicking on the Column selector symbol , the possible column options are displayed and the user can select to make visible the ones of his/her interest.



5. MEASUREMENT DETAILS

To view and edit the measurement details, the user must select the measurement and click on it. Then a new window will pop-up showing all measurement details. Important to mention that on this section the User can add a comment to the measurement with the form of 'Tag'. Also, The Aggregation state is editable and there is an option to Add some images related to the measurement.



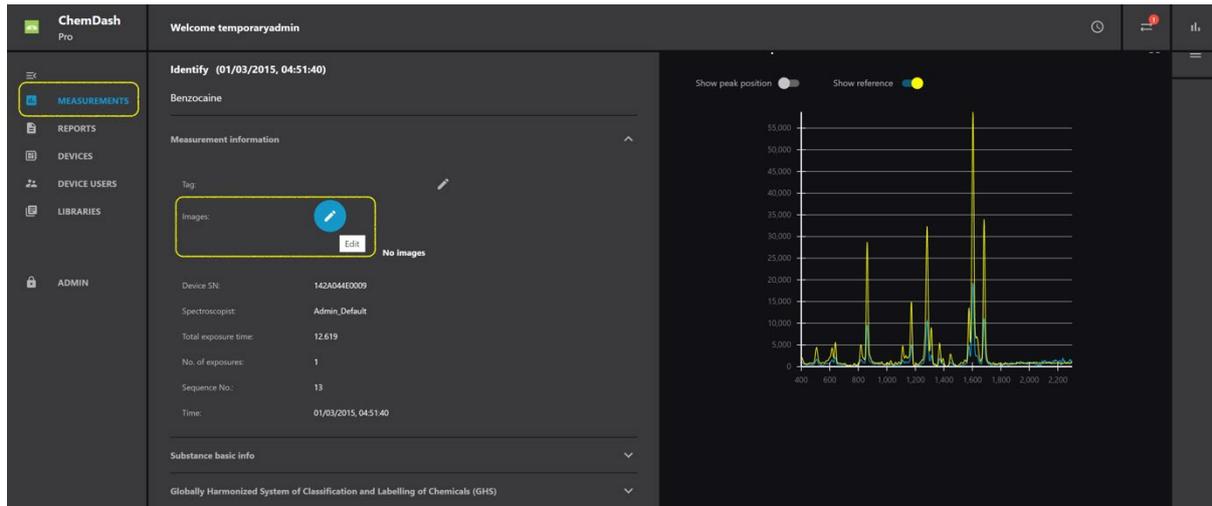
The other information available is:

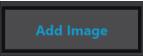
- Measurement information
- Substance basic info
- General Hazardous Information (GHS)
- Spectrum (with the possibility to show/hide the reference, the peak position and maximize the graph).

5.1. MEASUREMENT INFORMATION

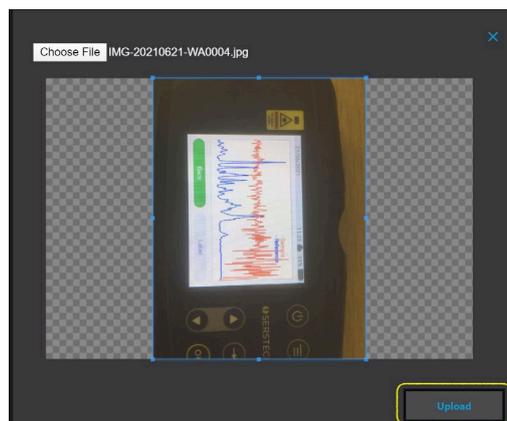
Here, the instrument settings from the analysis are displayed. Information here is not editable, except for the Tag, Aggregation state and Images. The Tag can be used to link any free text information to the measurement.

Also, the user has the possibility to upload some relevant images to a certain measurement, by clicking on Images section and then the pen symbol, which will allow the editing of the field

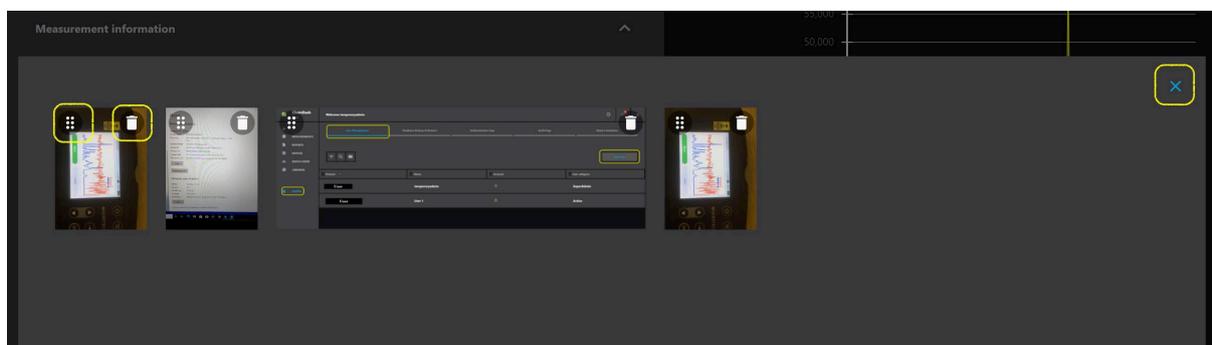


Another window will open and the user must click on  button, then on  button.

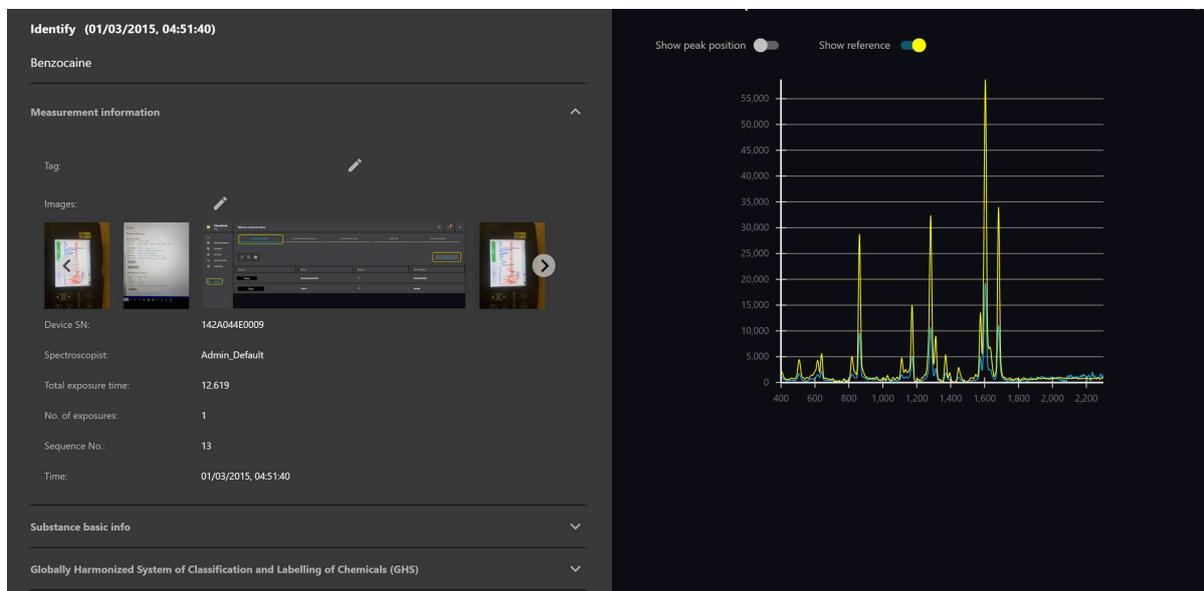
After having selected the desired image and cropped it based on the need, the user must click on Upload button.



After having chosen all the desired images to be uploaded to the measurement, there will be a preview displayed with all selected images.

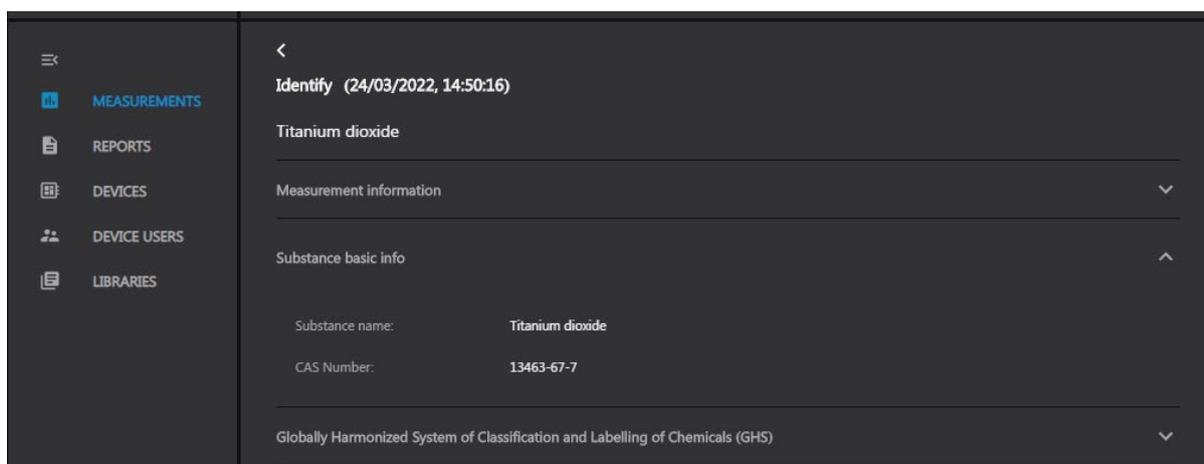


The user can change their order or delete any of them. After finishing all these actions, the user must close this window and all the images will appear in the specific field.



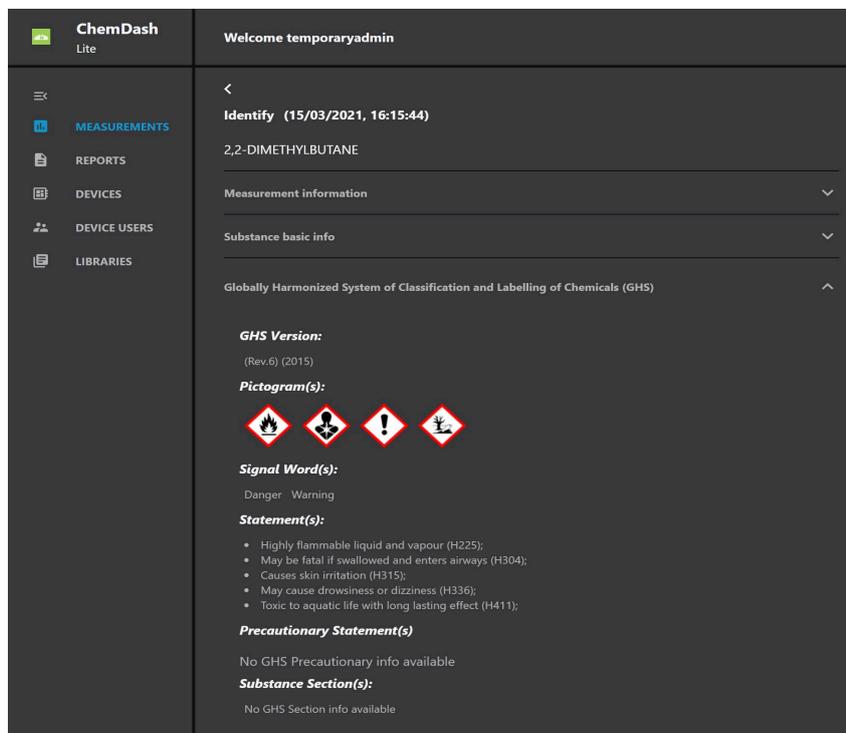
5.2. SUBSTANCE BASIC INFO

Substance information linked to the identified reference substance is displayed in this section. If no matching reference is found, this section is empty.



5.3. GENERAL HAZARDOUS INFORMATION

The information is displayed using the pictogram from GHS (Global Harmonized System of classification and labelling of chemicals). Information displayed are the GHS pictograms and the signal word for the matching reference identified. If no match is found, this section is empty.

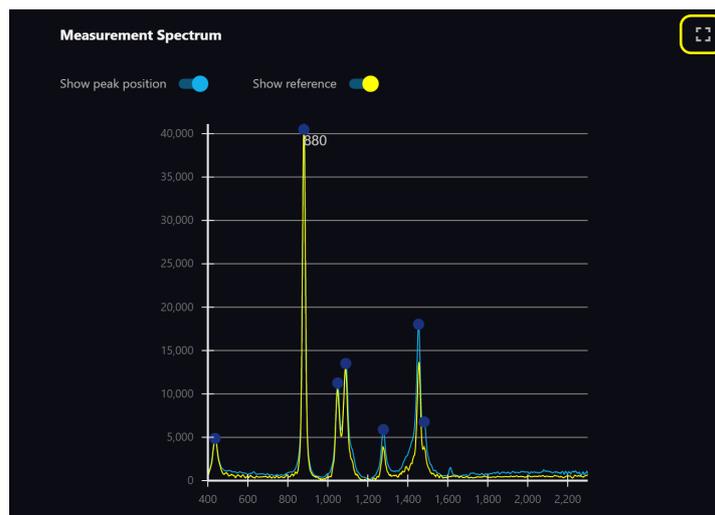


The screenshot displays the ChemDash Lite interface. On the left is a navigation menu with options: MEASUREMENTS, REPORTS, DEVICES, DEVICE USERS, and LIBRARIES. The main content area shows a 'Welcome temporaryadmin' header and a 'Identify' section with a timestamp of (15/03/2021, 16:15:44). The substance identified is 2,2-DIMETHYLBUTANE. Below this, there are expandable sections for 'Measurement information', 'Substance basic info', and 'Globally Harmonized System of Classification and Labelling of Chemicals (GHS)'. The GHS section is expanded, showing the following details:

- GHS Version:** (Rev.6) (2015)
- Pictogram(s):** Four pictograms are displayed: a flame (F+), a skull and crossbones (T+), an exclamation mark (Xi), and a person with a star (H+).
- Signal Word(s):** Danger Warning
- Statement(s):**
 - Highly flammable liquid and vapour (H225);
 - May be fatal if swallowed and enters airways (H304);
 - Causes skin irritation (H315);
 - May cause drowsiness or dizziness (H336);
 - Toxic to aquatic life with long lasting effect (H411);
- Precautionary Statement(s)**
No GHS Precautionary info available
- Substance Section(s):**
No GHS Section info available

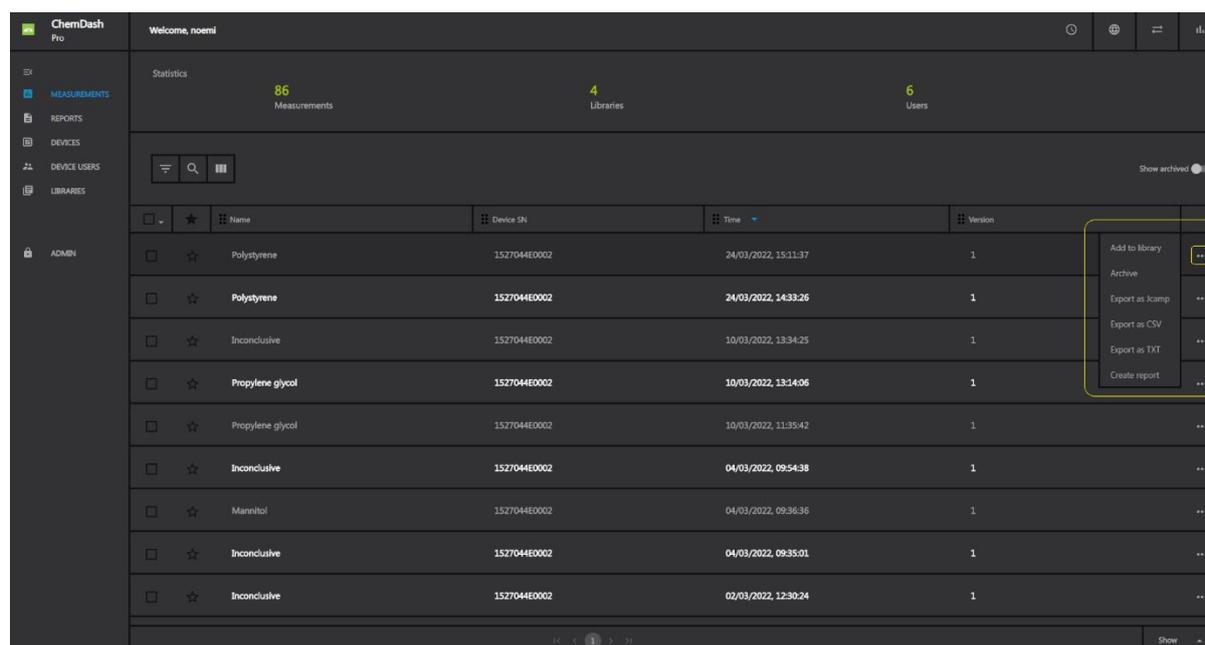
5.4. SPECTRUM GRAPH

The graph from the measurement is displayed together with the reference spectrum from the match. The reference spectrum can be displayed / removed with the button "Show reference". Peak positions will sequentially be displayed, with their wavenumber, as the cursor is moved over the graph. This function can be turned on/off with the use of the button "Hide peak position"



6. MEASUREMENT OPTIONS

By clicking on the three dots on the far right of the measurement a dropdown menu providing several options is displayed

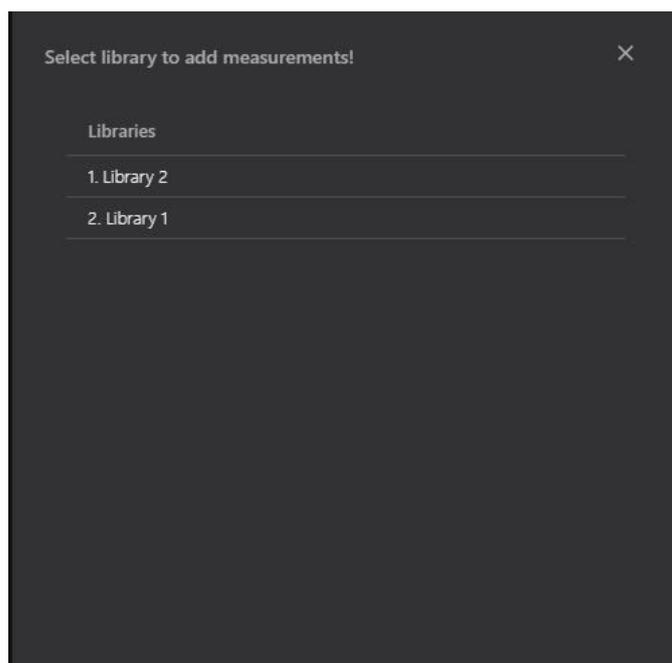


The screenshot shows the ChemDash Pro interface. At the top, there are statistics for 86 Measurements, 4 Libraries, and 6 Users. Below this is a table of measurements. The table has columns for Name, Device SN, Time, and Version. A dropdown menu is open for the first row, showing options: 'Add to library', 'Archive', 'Export as Icamp', 'Export as CSV', 'Export as TXT', and 'Create report'. The 'Add to library' option is highlighted with a yellow box.

Name	Device SN	Time	Version
Polystyrene	152704E0002	24/03/2022, 15:11:37	1
Polystyrene	152704E0002	24/03/2022, 14:33:26	1
Inconclusive	152704E0002	10/03/2022, 13:34:25	1
Propylene glycol	152704E0002	10/03/2022, 13:14:06	1
Propylene glycol	152704E0002	10/03/2022, 11:35:42	1
Inconclusive	152704E0002	04/03/2022, 09:54:38	1
Mannitol	152704E0002	04/03/2022, 09:36:36	1
Inconclusive	152704E0002	04/03/2022, 09:35:01	1
Inconclusive	152704E0002	02/03/2022, 12:30:24	1

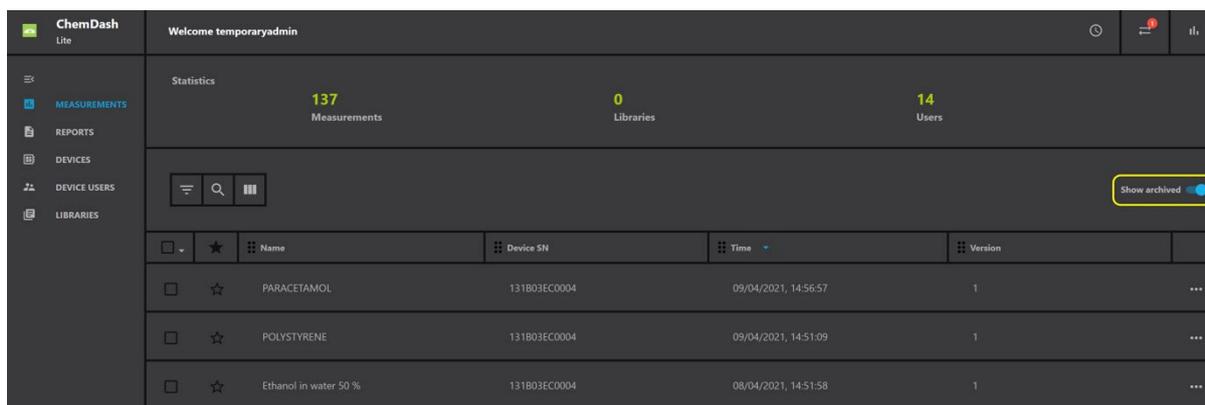
Add to library

With this option the selected measurement can be directly incorporated into library. Simply select which of the available libraries it should be included in.



6.1. ARCHIVE MEASUREMENTS

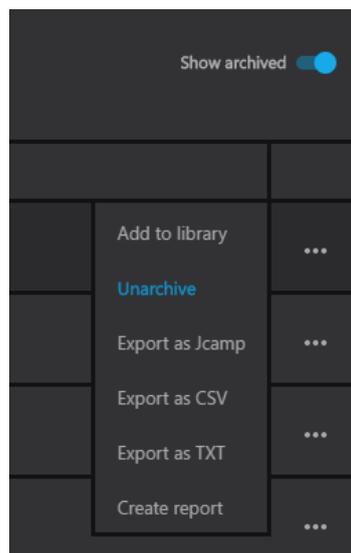
To get a better overview of the current measurements, the old or less relevant measurements can be archived. By selecting “Archive” in the list of options, the measurement will no longer be shown in the list of measurements. With the button “Show archived” it is possible to shift between displaying archived or active measurements.



The screenshot shows the ChemDash Lite interface. The top navigation bar includes the ChemDash logo, the user name 'Welcome temporaryadmin', and a notification bell icon. The main dashboard area displays statistics: 137 Measurements, 0 Libraries, and 14 Users. Below the statistics is a table of measurements with columns for Name, Device SN, Time, and Version. The 'Show archived' toggle is highlighted with a yellow box.

	Name	Device SN	Time	Version
<input type="checkbox"/>	PARACETAMOL	131B03EC0004	09/04/2021, 14:56:57	1
<input type="checkbox"/>	POLYSTYRENE	131B03EC0004	09/04/2021, 14:51:09	1
<input type="checkbox"/>	Ethanol in water 50 %	131B03EC0004	08/04/2021, 14:51:58	1

An archived measurement can be brought back to the list of active measurement by displaying the archived measurement and then selecting “Unarchive”.



6.2. EXPORTING SPECTRA

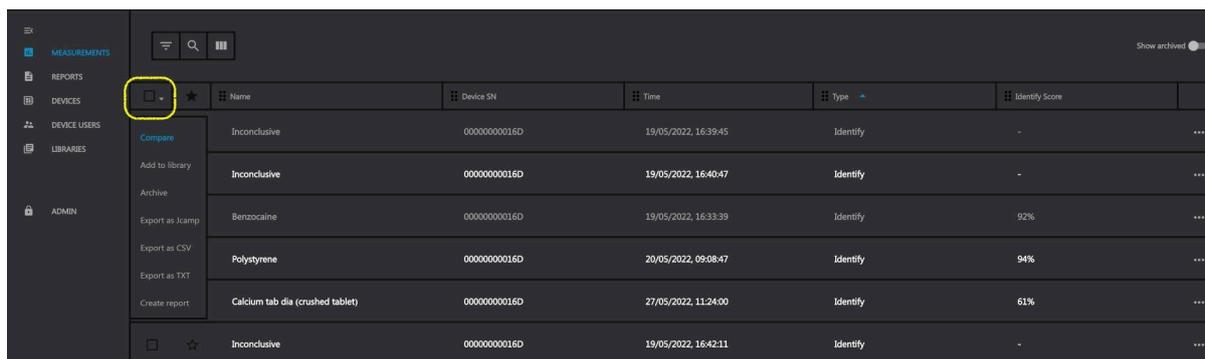
With the Export function, the spectrum from the measurement is exported outside ChemDash and it can be used with other programs *e.g.*, Excel. There are several formats that the measurement can be exported to: Jcamp, txt and csv.

There is also a batch export function where several spectra can be exported simultaneously. Here the measurements to be exported are chosen by ticking the boxes to the left, in the list of spectra. Then the small arrow next to the box in the top left corner of the menu is clicked. Select the format for the export.

The selected spectra are exported as a .zip file. To select all spectra for export tick the box next to the small arrow on the left of the row.

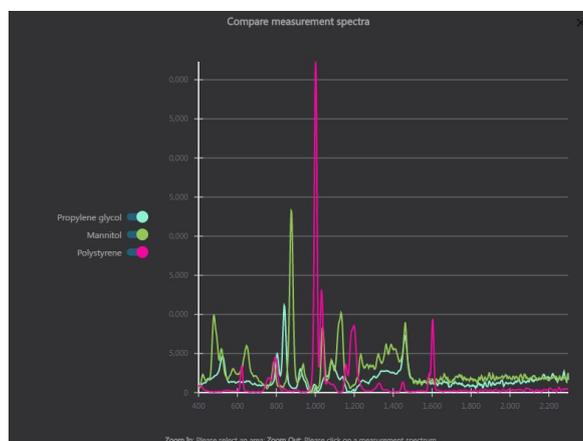
6.3. COMPARING THE SPECTRA

Another option available is the one of comparing several spectra from the measurement. The user must click the arrow next to the tick box and then select all the substances he/she wants to compare, by ticking the names.



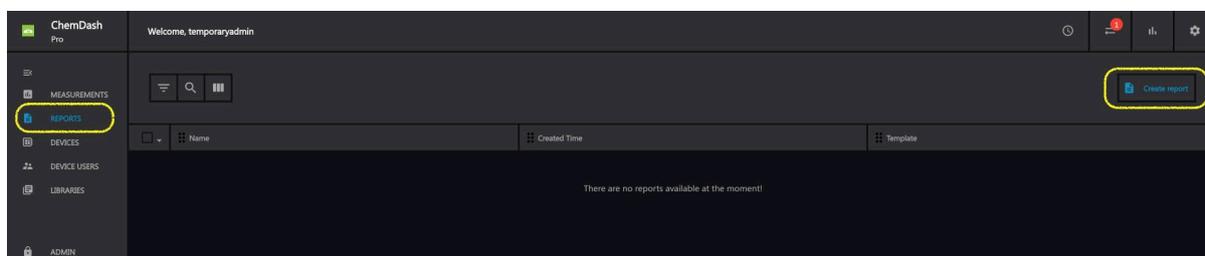
Name	Device SN	Time	Type	Identify Score
Inconclusive	00000000016D	19/05/2022, 16:39:45	Identify	-
Inconclusive	00000000016D	19/05/2022, 16:40:47	Identify	-
Benzocaine	00000000016D	19/05/2022, 16:33:39	Identify	92%
Polystyrene	00000000016D	20/05/2022, 09:08:47	Identify	94%
Calcium tab dia (crushed tablet)	00000000016D	27/05/2022, 11:24:00	Identify	61%
Inconclusive	00000000016D	19/05/2022, 16:42:11	Identify	-

The spectra are displayed together in the same graph with different colors. The different spectra can be selectively removed from the graph, with the display on/off buttons to the right of the graph.

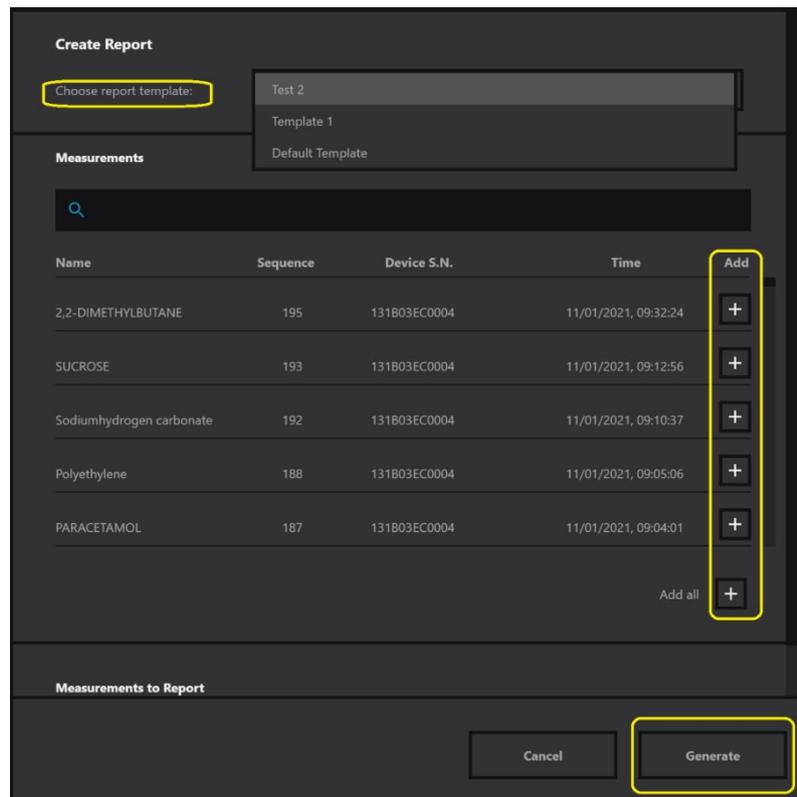


7. REPORTS

A report can be created by clicking the 'Create Report' button from the Reports section on the left menu.



The User can now choose a report template, for **Pro version** or the Default template for Lite, and add a substance or substances that will be shown on the report and then click on 'Generate'.



The case report is now saved in the Reports section.

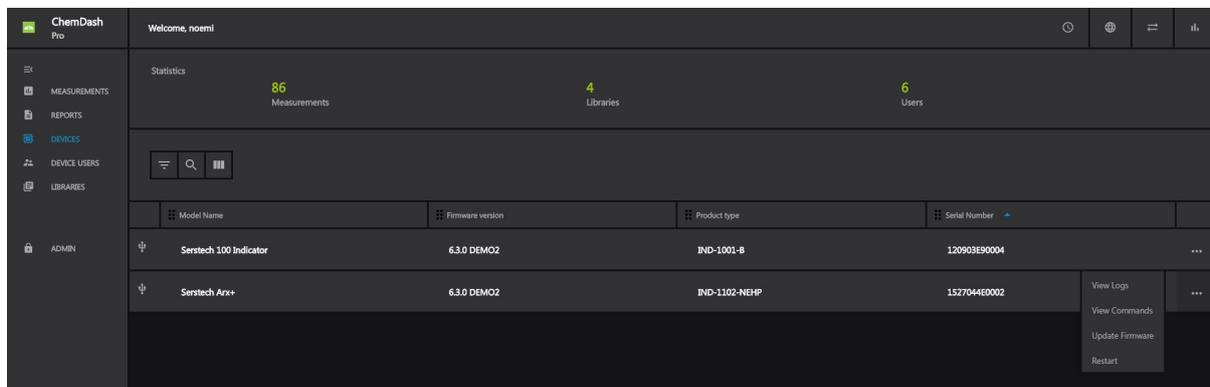
The user will also have the option to download the report to the PC in a PDF format.



8. DEVICE MANAGEMENT

ChemDash offers to the User the possibility to manage all instruments and to establish different types of connection between them and the application. By entering the 'Devices' section on the left menu, the User can view all instruments that were paired to this ChemDash installation and edit their details. Please note that for Lite license, there is only one device that can be connected to a ChemDash instance. If you need to connect several devices, we advise to acquire **Pro** or **Pro+** version of our software.

The following actions are available from the "Device" menu:



8.1. VIEW LOGS

Many actions performed locally with the instrument are continually logged. Logs are automatically uploaded to ChemDash when the instrument is connected.

8.2. VIEW COMMANDS

This option links to a history of all commands which have been sent between the instrument and the ChemDash. It can be used to verify that actions are accepted by the instrument as well as for general network debugging purposes.

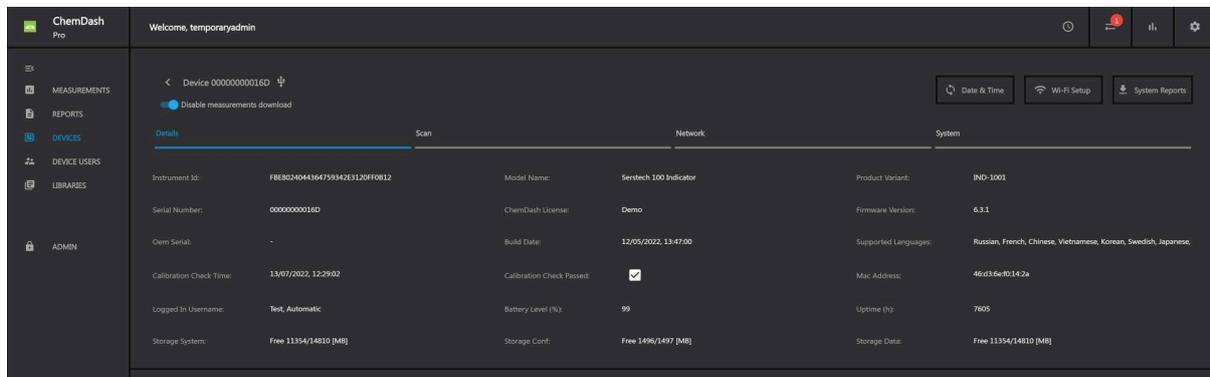
8.3. UPGRADE FIRMWARE

This is an option for updating the firmware on the connected device if firmware upgrade file is already downloaded on the computer.

8.4. RESTART

This option will restart the instrument.

By clicking on the instrument name, the User will be able to find all the details regarding the connected instrument.

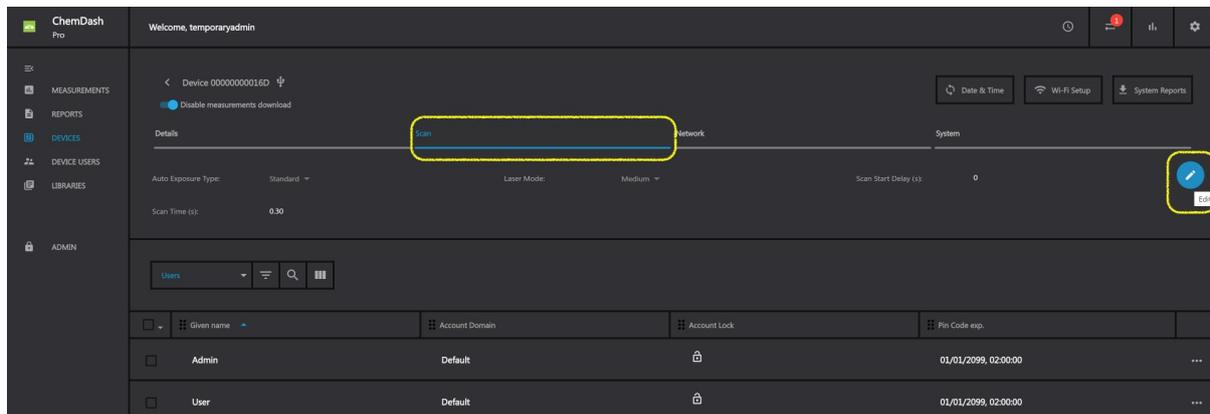


8.5. DETAILS

This tab gives information about the instrument and is not editable.

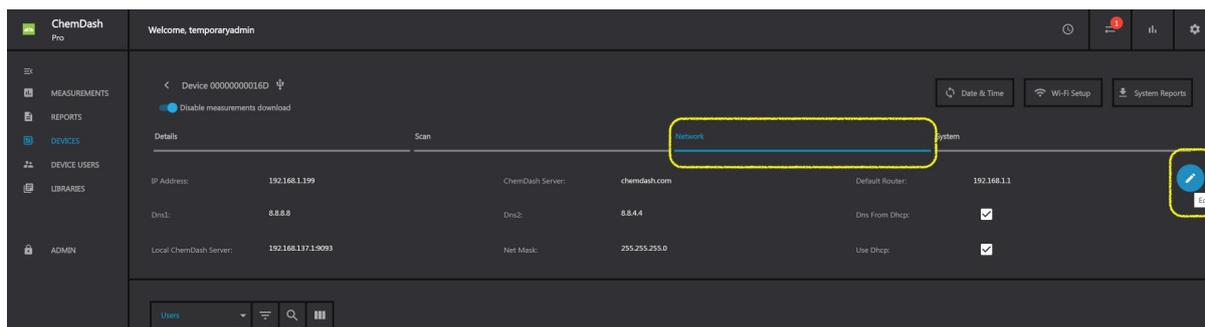
8.6. SCAN

This tab shows the information related to the scanning process. There are some details that can be adjusted for the connected instrument. This can be done by clicking the pencil symbol and then choosing the desired option from the drop-down menu or manually selecting the number of seconds.



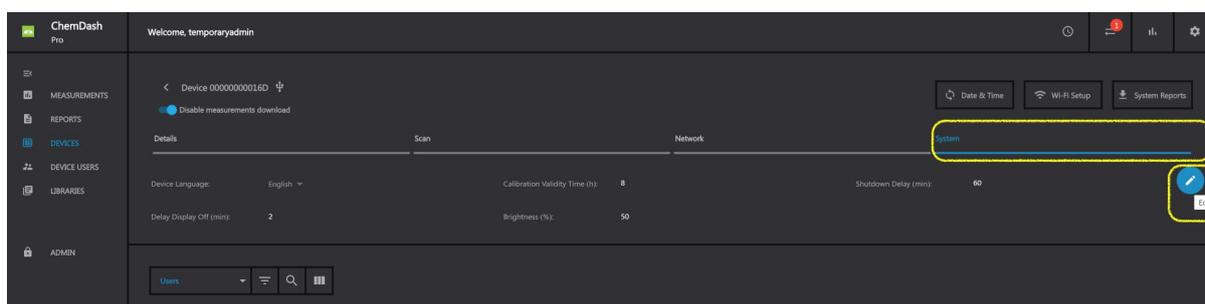
8.7. NETWORK

This is the tab where the user can edit the fields in order to be able to connect the device via Wi-Fi.

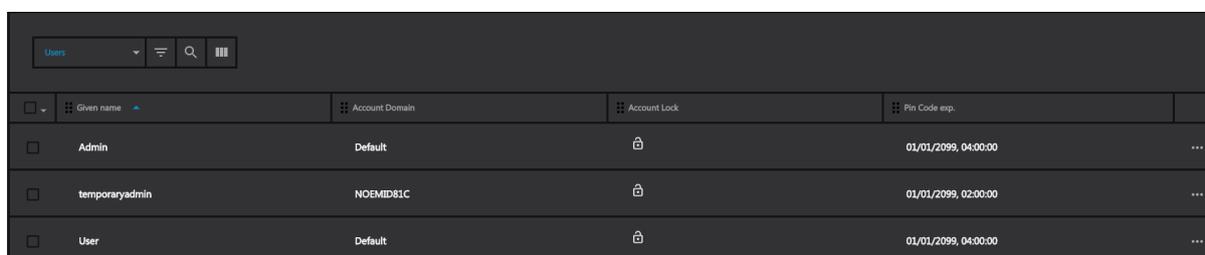


8.8. SYSTEM

This is the section where several device settings can be configured.



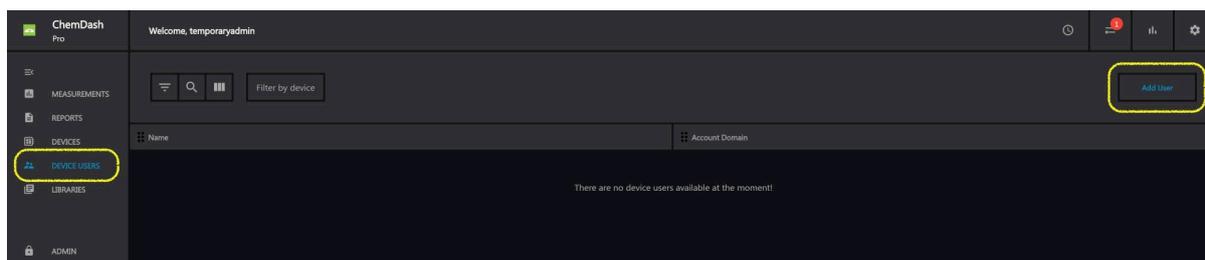
The 'Users' section displays the User accounts that are on the instrument. Also, there is the possibility to add some more users to the selected instrument.



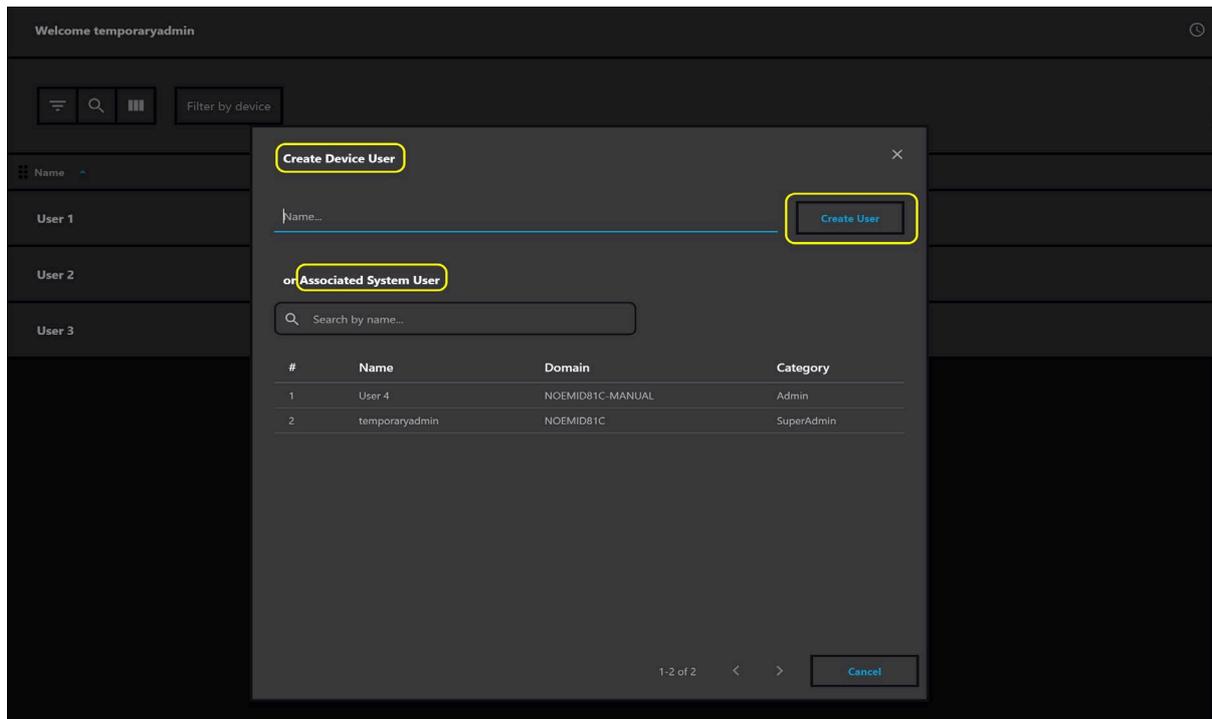
Given name	Account Domain	Account Lock	Pin Code exp.	
Admin	Default	<input type="checkbox"/>	01/01/2099, 04:00:00	...
temporaryadmin	NOEMID81C	<input type="checkbox"/>	01/01/2099, 02:00:00	...
User	Default	<input type="checkbox"/>	01/01/2099, 04:00:00	...

9. DEVICE USERS

This section allows the creation and addition of the users for a device. The options of sorting, searching, and filtering (allowing the user to personalize the view) are there and have the same functionalities as for the other tabs.

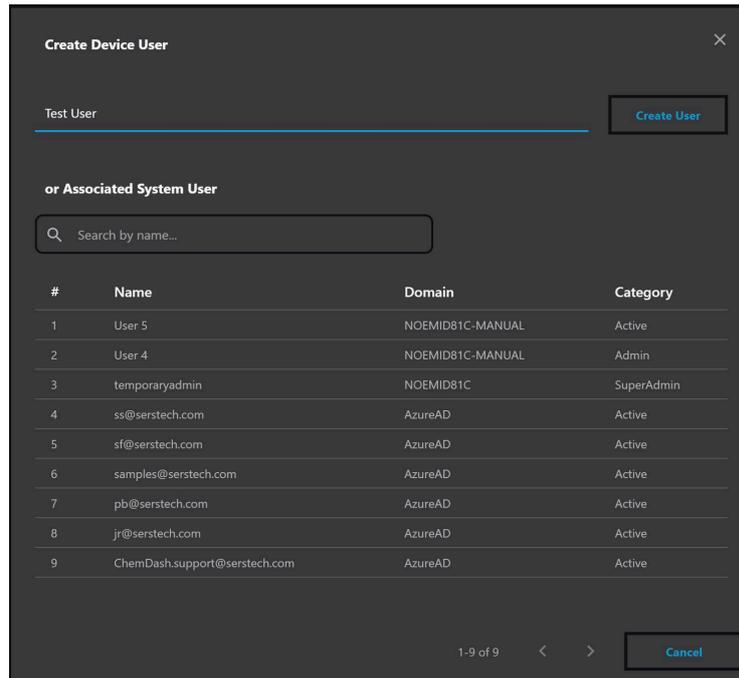


The possibility to create and add a new user for the device is available only for **Pro version**. In order to create a new user, the button “Add User” must be clicked. A new window will open.

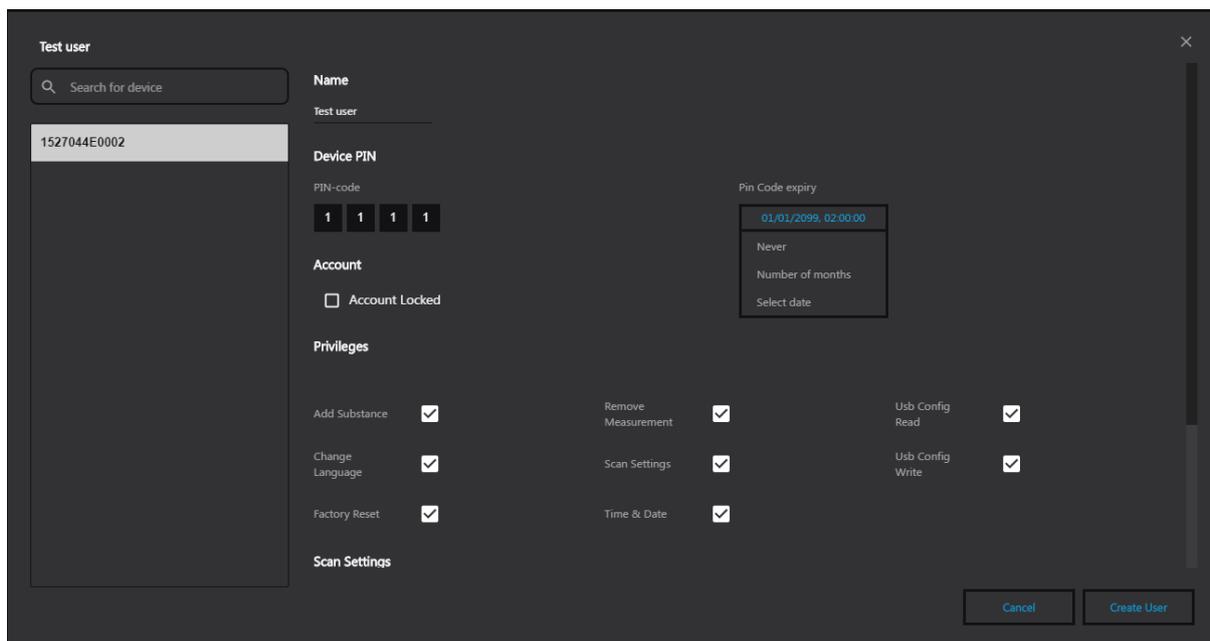


There are two options for adding a Device user:

1. Create a Device User – add a name and click on “Create User” button



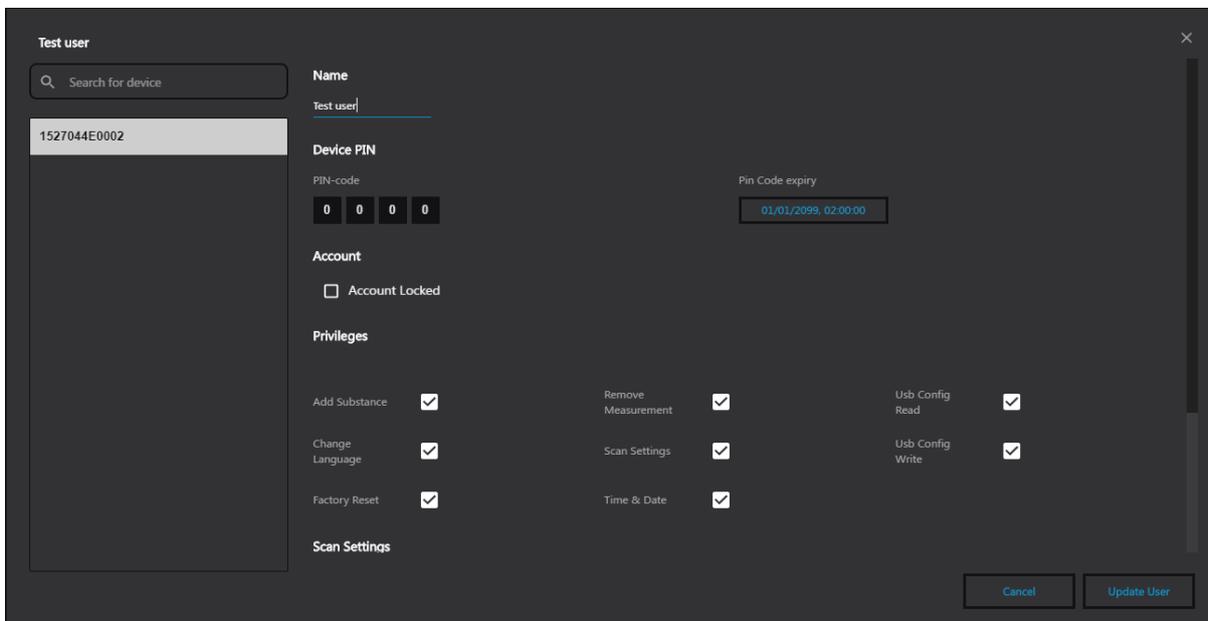
The Admin must choose the name for the user to be created together with some privileges that will be given to it and also the device to be associated.



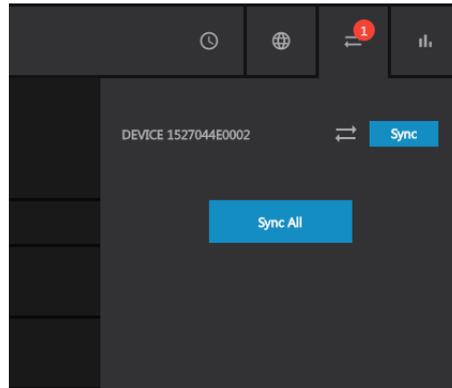
A PIN code must be set up in this stage and its expiry date. This one can be set to never or the number of validity months can be chosen. Also, there are some Scan settings that must be decided by checking them or not, so that the user will have/ not have those privileges. After all these details are established, the button “Create User” must be clicked.

2. Choose an “Associated System User” – meaning that for a certain ChemDash user there can be a Device user associated; the Admin doing this operation can choose from the list below the Search bar or search for a specific system user directly. In that list there are the ChemDash users that do not have a device user associated.

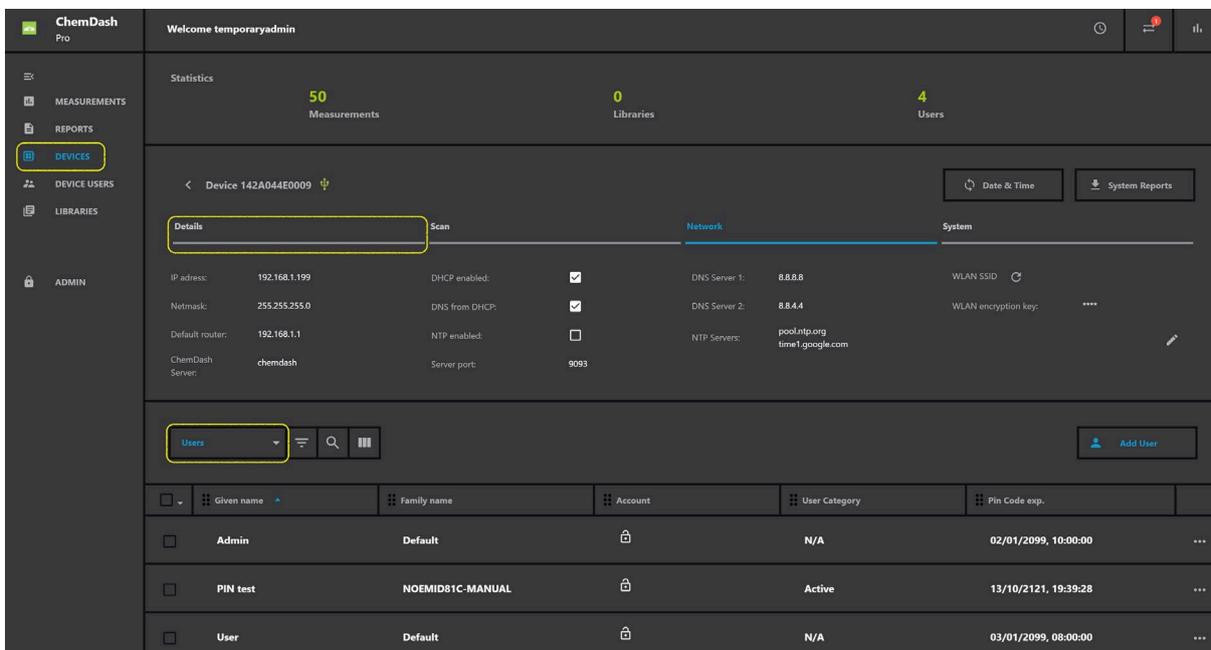
After the choice was made, the “Create User” button must be clicked. This will lead to another window where details (Device Pin, Privileges, Pin Code Expiry, Account locked) must be set. It is also possible to select the device for which this user is created.



After all these details were established and the “Create User” button was clicked, there will be a notification announcing that this new user was created. Then, the device must be synced so the newly created users are transferred to the device.

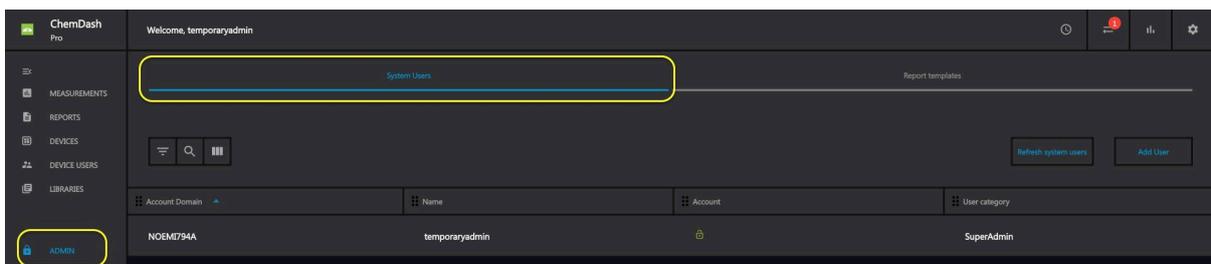


In the Devices section, one can see all the Device users that were created, even if they have a system user associated or not.



Given name	Family name	Account	User Category	Pin Code exp.
Admin	Default		N/A	02/01/2099, 10:00:00
PIN test	NOEMID81C-MANUAL		Active	13/10/2121, 19:39:28
User	Default		N/A	03/01/2099, 08:00:00

In the Admin tab (visible only for **Pro version**), one can see all the System users, even if they have a Device user associated or not

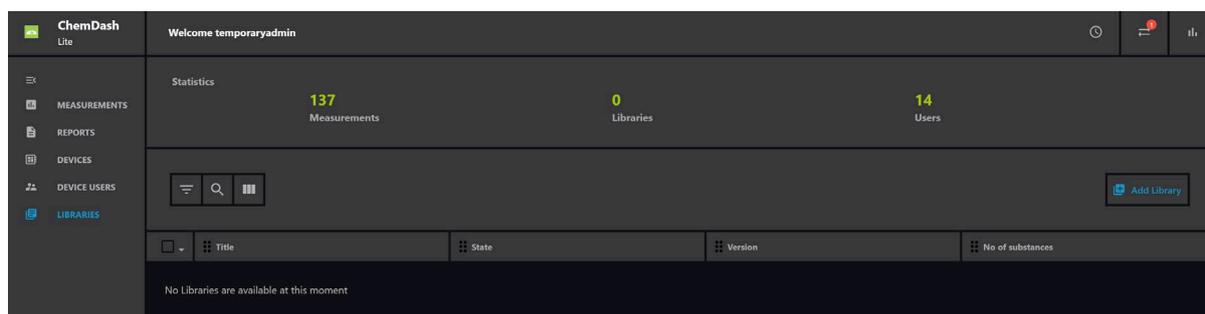


Account Domain	Name	Account	User category
NOEMIT794A	temporaryadmin		SuperAdmin

10. LIBRARIES MANAGEMENT

In the library management, user defined libraries are handled. An essential functionality in ChemDash is the ability to build spectral reference libraries and download them to instruments for use in the field. This will allow the users to customize the solution to their specific needs.

The 'Libraries' are available on the left menu and if there are no libraries built yet, the following screen will be displayed:

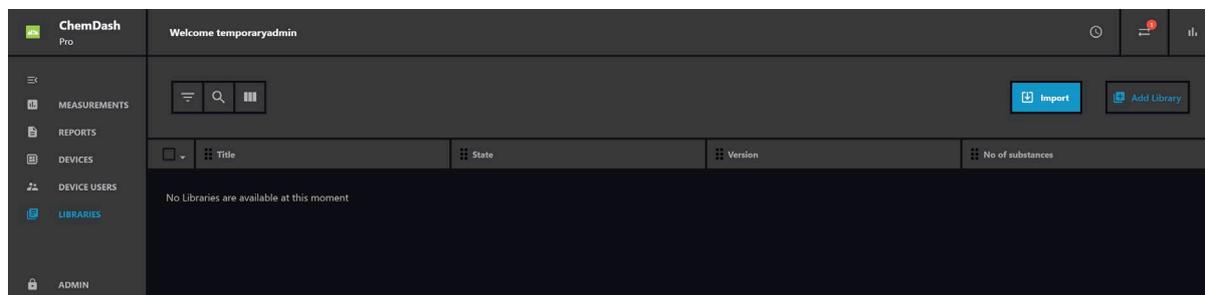


10.1. TO ADD A LIBRARY TO THE APPLICATION

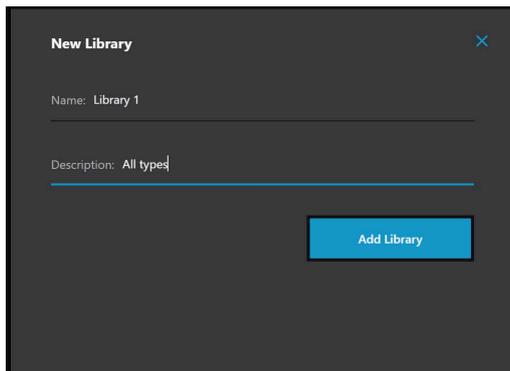
The user has two options:

1. To import an already created library – only for ChemDash **Pro** users

If there is a library that was previously created and exported to the PC from another ChemDash instance, that library can be imported in the current instance by going to the Libraries section, click on the 'Import' button and a window will show, from which the user can select the desired library.

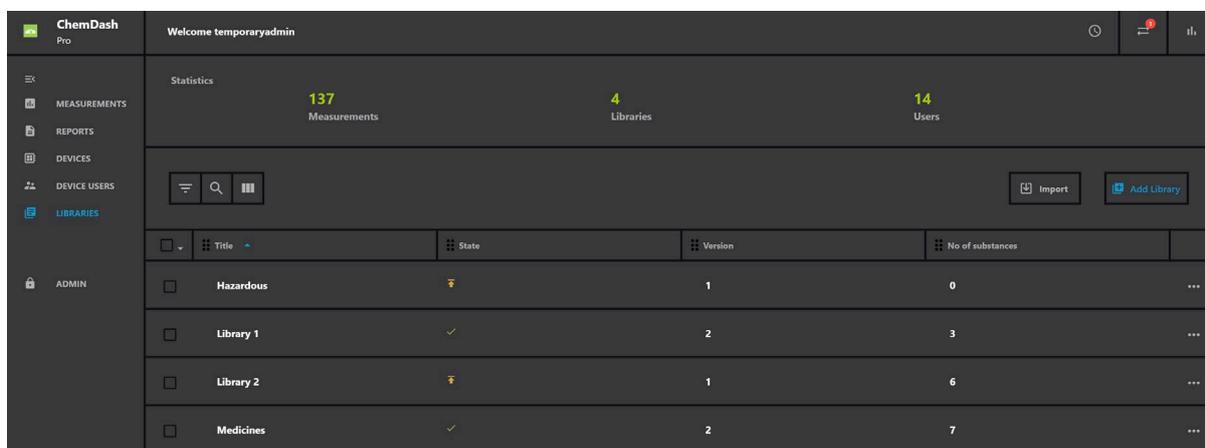


2. To create a new library, by clicking on the 'Add Library' button, select a name and a description (optional) for it:



The 'New Library' dialog box is a dark-themed window with a close button (X) in the top right corner. It contains two text input fields: 'Name: Library 1' and 'Description: All types'. Below the description field is a blue 'Add Library' button.

In case that the User had already created some libraries, the following screen would appear:

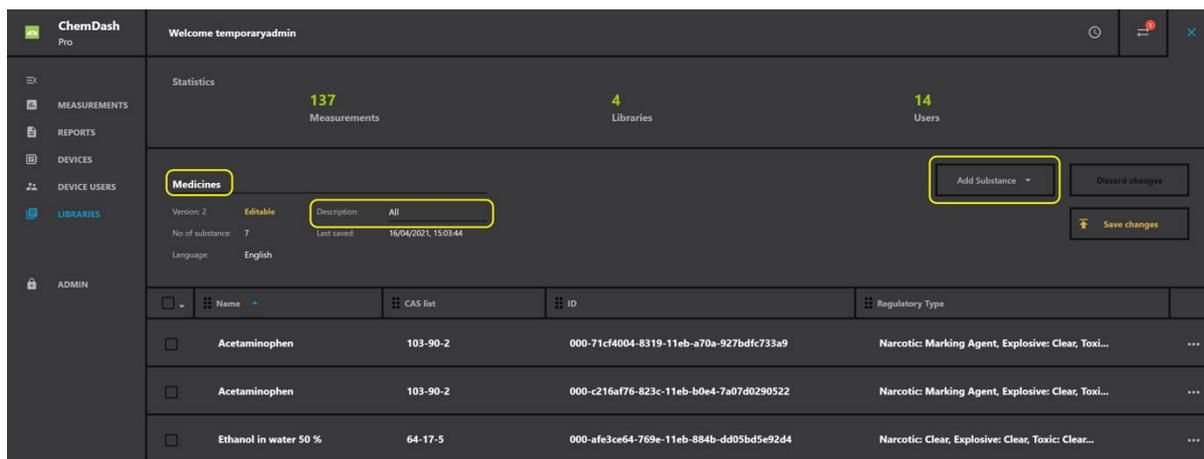


The dashboard shows a sidebar with navigation options: MEASUREMENTS, REPORTS, DEVICES, DEVICE USERS, LIBRARIES, and ADMIN. The main area displays statistics: 137 Measurements, 4 Libraries, and 14 Users. Below the statistics is a table of libraries with columns for Title, State, Version, and No of substances. The table includes buttons for 'Import' and 'Add Library'.

Title	State	Version	No of substances
Hazardous	⚠	1	0
Library 1	✓	2	3
Library 2	⚠	1	6
Medicines	✓	2	7

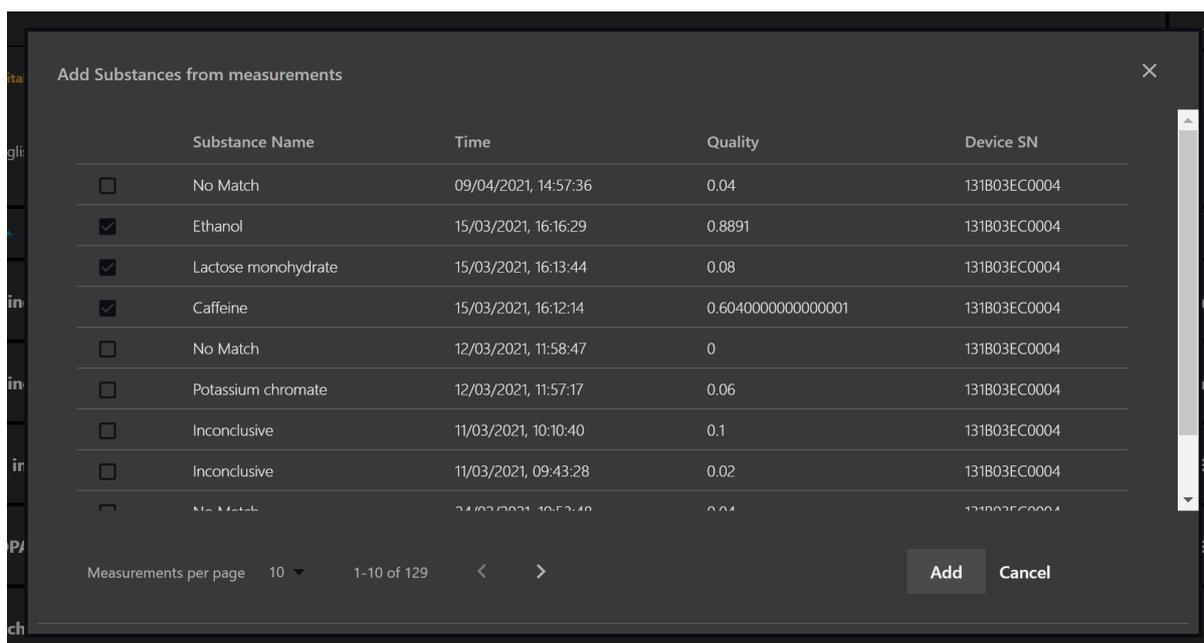
In order to see the items and all details, the user must click on one library and the details will be displayed.

By clicking the Edit button, the User can change the description of the library or add substances (from other libraries or from the measurements uploaded to ChemDash).



Name	CAS list	ID	Regulatory Type
Acetaminophen	103-90-2	000-71cf4004-8319-11eb-a70a-927bdfc733a9	Narcotic: Marking Agent, Explosive: Clear, Toxi...
Acetaminophen	103-90-2	000-c216af76-823c-11eb-b0e4-7a07d0290522	Narcotic: Marking Agent, Explosive: Clear, Toxi...
Ethanol in water 50 %	64-17-5	000-afe3ce64-769e-11eb-884b-dd05bd5e92d4	Narcotic: Clear, Explosive: Clear, Toxic: Clear...

A list with all available measurements will appear and the User can select the ones that wants to be added to the library.



Substance Name	Time	Quality	Device SN
<input type="checkbox"/> No Match	09/04/2021, 14:57:36	0.04	131B03EC0004
<input checked="" type="checkbox"/> Ethanol	15/03/2021, 16:16:29	0.8891	131B03EC0004
<input checked="" type="checkbox"/> Lactose monohydrate	15/03/2021, 16:13:44	0.08	131B03EC0004
<input checked="" type="checkbox"/> Caffeine	15/03/2021, 16:12:14	0.6040000000000001	131B03EC0004
<input type="checkbox"/> No Match	12/03/2021, 11:58:47	0	131B03EC0004
<input type="checkbox"/> Potassium chromate	12/03/2021, 11:57:17	0.06	131B03EC0004
<input type="checkbox"/> Inconclusive	11/03/2021, 10:10:40	0.1	131B03EC0004
<input type="checkbox"/> Inconclusive	11/03/2021, 09:43:28	0.02	131B03EC0004
<input type="checkbox"/> No Match	11/03/2021, 10:53:40	0.04	131B03EC0004

After adding all measurements into the library, the User can edit all substance information. To edit the substance information the User must click on the preferred substance and then click on 'Edit'. The substance window will show up. The data directly below the substance name 'Measurement information', represents information coming from the

instrument and is not editable. This part has the information that will be shown to a User on a field analysis.

It is important to mention that ChemDash supports two types of information: GHS and Custom. GHS (Globally Harmonized System of Classification and Labelling of Chemicals) is substance information formatted according to the international GHS standard. ChemDash fully supports GHS, including relevant warning pictograms which are shown to the field officer when using the instruments. The ChemDash input form makes it easy to add GHS- formatted information to Users' library records. For a given substance we refer the user to find substance information in the safety data sheet from the supplier.

The Custom option allows User to add custom information, *e.g.*, specific handling procedures or responder actions to be performed when the substance in question has been identified. Thus, the combination of GHS and Custom information constitutes a very flexible solution which can be adapted to User needs over time. The data on the right side of the screen (below the spectrum plot) is internal information only. It is reference information related to the measurement situation, type of instrument used, etc. This is never displayed on the instrument in the event of a match to this library entry but only visible to ChemDash Users.

Once all changes are made to the library, the User can 'Save' the changes by clicking the correspondent button and the state of the library will be changed into 'Saved'.



<input type="checkbox"/>	Title	State	Version	No of substances	
<input type="checkbox"/>	Miscellaneous	SAVED	1	8	...
<input type="checkbox"/>	Dangerous		1	0	...
<input type="checkbox"/>	Medicines		1	0	...

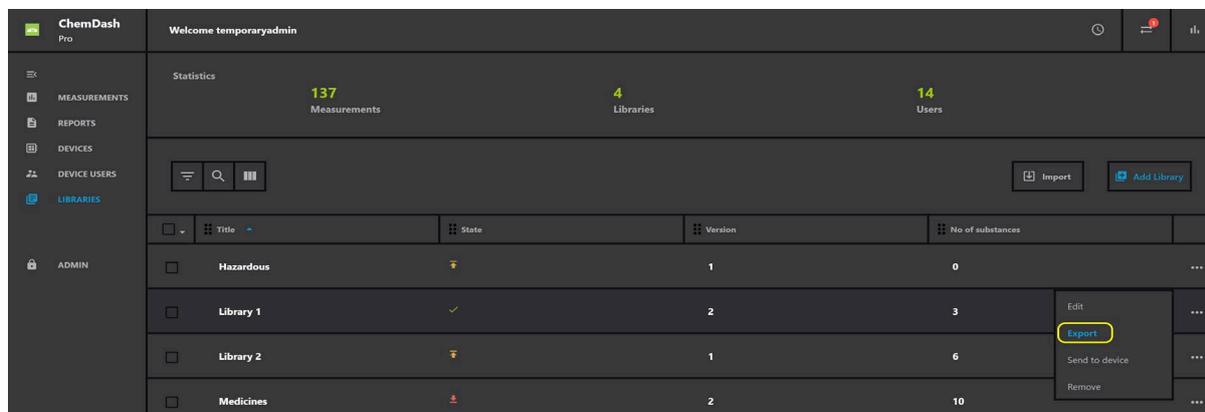
In order to be able to send a library to a device, the User needs to Publish it first and that can be made by clicking the corresponding button. This change will be visible on the main page too.

<input type="checkbox"/>	Title	State	Version	No of substances	
<input type="checkbox"/>	Miscellaneous		1	8	...
<input type="checkbox"/>	Dangerous		2	3	...
<input type="checkbox"/>	Medicines		1	0	...
<input type="checkbox"/>	Food		1	0	...

Apart from editing a library, a User can also:

10.2. EXPORT IT TO THE PC

The exported library can be transferred to a PC with running another ChemDash installation to which the library can be imported. This action can be done from the main screen of the Libraries section, select the library that needs to be exported and click on “Export” button, as shown below:

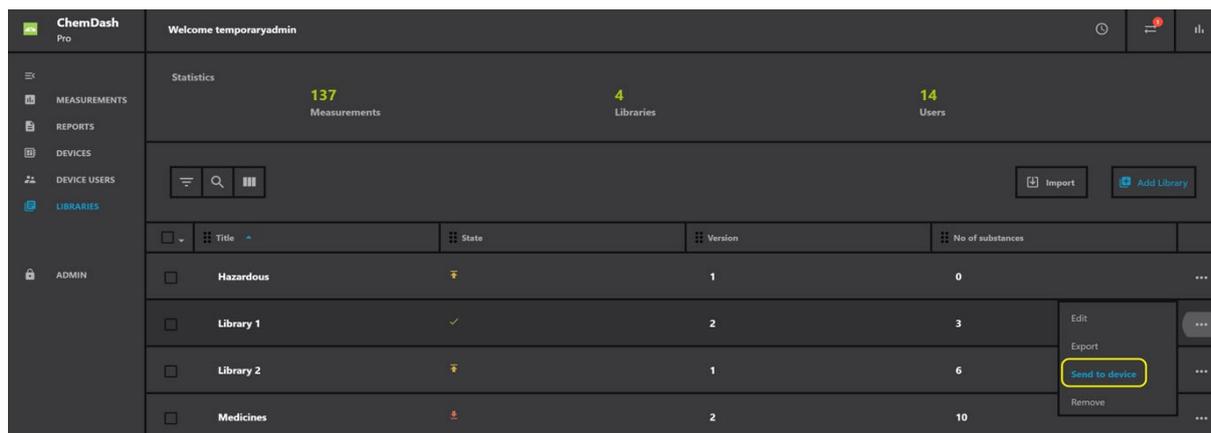


The screenshot shows the ChemDash Pro interface. The top navigation bar includes 'MEASUREMENTS', 'REPORTS', 'DEVICES', 'DEVICE USERS', 'LIBRARIES', and 'ADMIN'. The main content area displays statistics for Measurements (137), Libraries (4), and Users (14). Below the statistics is a table of libraries with columns for Title, State, Version, and No of substances. The 'Library 1' row is selected, and a context menu is open over it, showing options: Edit, Export (highlighted with a yellow circle), Send to device, and Remove.

<input type="checkbox"/>	Title	State	Version	No of substances	
<input type="checkbox"/>	Hazardous		1	0	...
<input type="checkbox"/>	Library 1		2	3	...
<input type="checkbox"/>	Library 2		1	6	...
<input type="checkbox"/>	Medicines		2	10	...

10.3. SEND IT TO THE INSTRUMENT

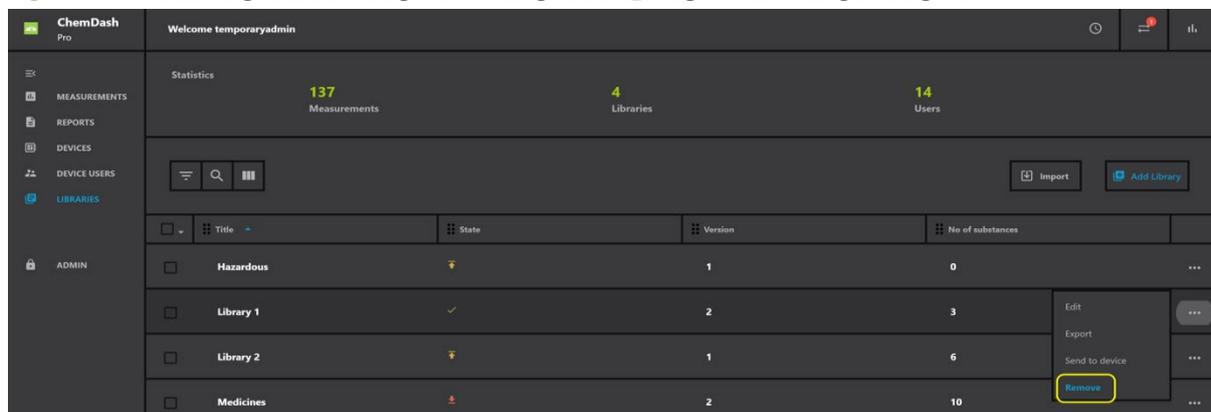
A library can be sent to a connected device only after it was published. The user must select the desired library from the main page of Libraries section and click on “Send to device” button



The screenshot shows the ChemDash Pro interface with a sidebar on the left containing navigation options: MEASUREMENTS, REPORTS, DEVICES, DEVICE USERS, LIBRARIES, and ADMIN. The main content area displays a 'Statistics' section with 137 Measurements, 4 Libraries, and 14 Users. Below this is a table of libraries. A context menu is open over the 'Library 2' row, with the 'Send to device' option highlighted in yellow.

Title	State	Version	No of substances	
Hazardous	⚠	1	0	...
Library 1	✓	2	3	...
Library 2	⚠	1	6	...
Medicines	⚠	2	10	...

10.4. REMOVE IT FROM THE CHEMDASH APPLICATION



The screenshot shows the ChemDash Pro interface with the same sidebar and statistics as above. The context menu for 'Library 2' is open, and the 'Remove' option is highlighted in yellow.

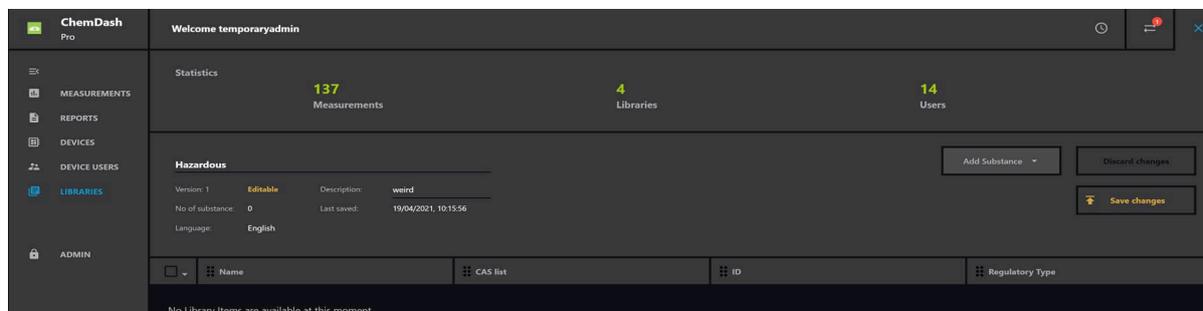
Title	State	Version	No of substances	
Hazardous	⚠	1	0	...
Library 1	✓	2	3	...
Library 2	⚠	1	6	...
Medicines	⚠	2	10	...

When building a library, the User is allowed to use his/her own measurements made with the instrument as reference. The User can use measurements made with any of the methods in the instrument. But to ensure maximum data quality we recommend collecting reference data with the Add New Substance method.

10.5. LIBRARY STATUS CHANGES

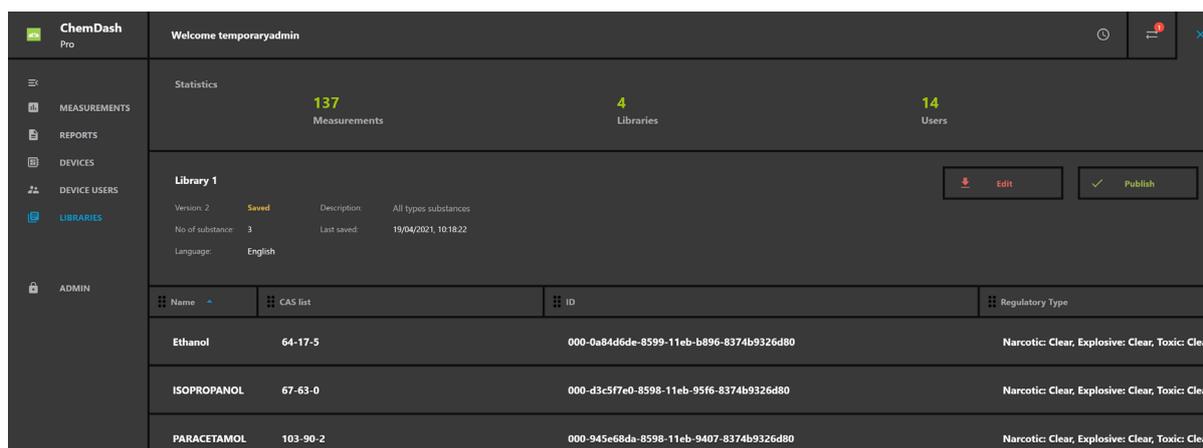
When working with libraries, the User will notice that the library status changes based on the activity. When the library is newly created, the status is 'Editable'. This indicates that the library has been created and is now being edited by the User. In this state the library cannot be downloaded to instrument and it is accessible only to the specified User.

However, if something happens and the user does not have the chance to press the Save button and the application closes (e.g. due to a power outage), the changes that were made in the library will not be lost.



The screenshot shows the ChemDash Pro interface. The top navigation bar includes 'MEASUREMENTS', 'REPORTS', 'DEVICES', 'DEVICE USERS', 'LIBRARIES', and 'ADMIN'. The main content area displays statistics: 137 Measurements, 4 Libraries, and 14 Users. Below the statistics, a 'Hazardous' library item is shown in an 'Editable' state. The item details include: Version: 1, Description: weird, No of substance: 0, Last saved: 19/04/2021, 10:15:56, and Language: English. Buttons for 'Add Substance', 'Discard changes', and 'Save changes' are visible. A table below the item shows columns for Name, CAS list, ID, and Regulatory Type, with a message 'No Library Items are available at this moment'.

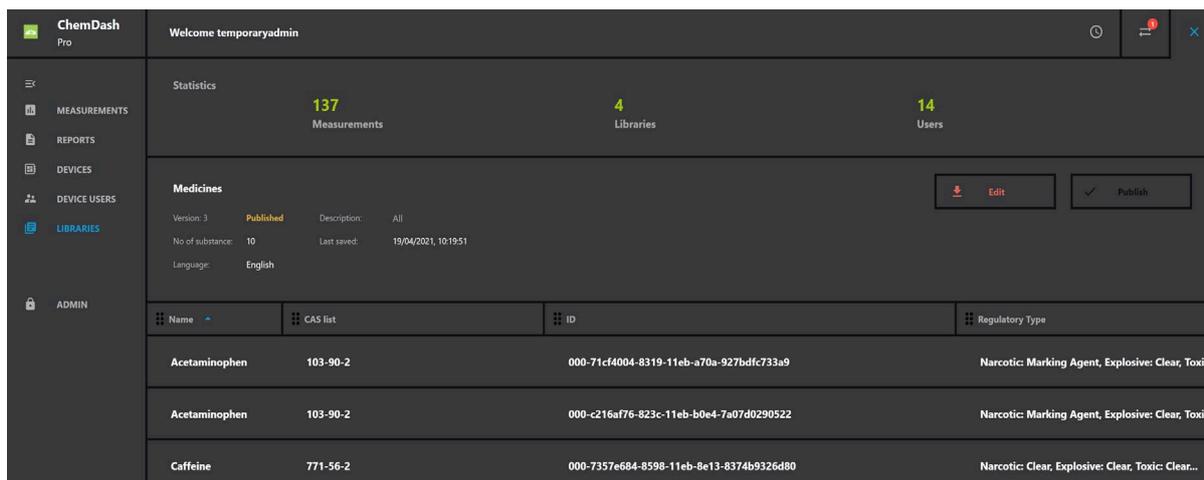
Once the User has made and saved all changes, then the status changes to 'Saved'. This state shows the library has been edited by someone and then saved.



The screenshot shows the ChemDash Pro interface with the 'Library 1' item in a 'Saved' state. The item details include: Version: 2, Description: All types substances, No of substance: 3, Last saved: 19/04/2021, 10:18:22, and Language: English. Buttons for 'Edit' and 'Publish' are visible. Below the item, a table lists substances with their names, CAS lists, IDs, and regulatory types.

Name	CAS list	ID	Regulatory Type
Ethanol	64-17-5	000-0a84d6de-8599-11eb-b896-8374b9326d80	Narcotic: Clear, Explosive: Clear, Toxic: Clear...
ISOPROPANOL	67-63-0	000-d3c5f7e0-8598-11eb-95f6-8374b9326d80	Narcotic: Clear, Explosive: Clear, Toxic: Clear...
PARACETAMOL	103-90-2	000-945e68da-8598-11eb-9407-8374b9326d80	Narcotic: Clear, Explosive: Clear, Toxic: Clear...

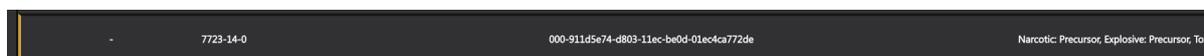
When the User clicks on 'Publish' then the status changes to 'Published' which means that the library is now ready to be sent to the instrument.



The screenshot shows the ChemDash Pro interface. The top navigation bar includes 'MEASUREMENTS', 'REPORTS', 'DEVICES', 'DEVICE USERS', 'LIBRARIES', and 'ADMIN'. The main content area displays 'Statistics' with 137 Measurements, 4 Libraries, and 14 Users. Below this, there is a 'Medicines' section with 'Edit' and 'Publish' buttons. A table lists medicines with columns for Name, CAS list, ID, and Regulatory Type. The first row for 'Acetaminophen' has a small downward arrow next to the name, indicating a missing translation for the selected language.

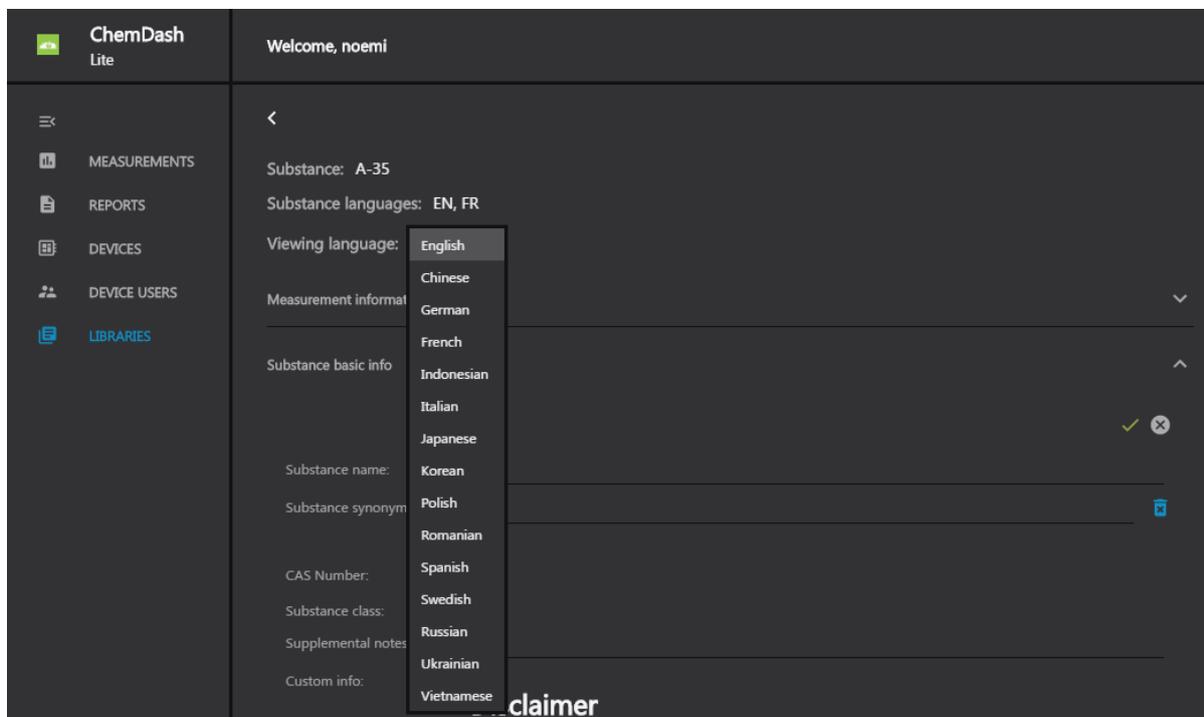
Name	CAS list	ID	Regulatory Type
Acetaminophen	103-90-2	000-71cf4004-8319-11eb-a70a-927bdfc733a9	Narcotic; Marking Agent, Explosive; Clear, Toxi...
Acetaminophen	103-90-2	000-c216af76-823c-11eb-b0e4-7a07d0290522	Narcotic; Marking Agent, Explosive; Clear, Toxi...
Caffeine	771-56-2	000-7357e684-8598-11eb-8e13-8374b9326d80	Narcotic; Clear, Explosive; Clear, Toxic; Clear...

The substance which doesn't have a translation for the selected language, will have a visual different sign at the beginning of the row.



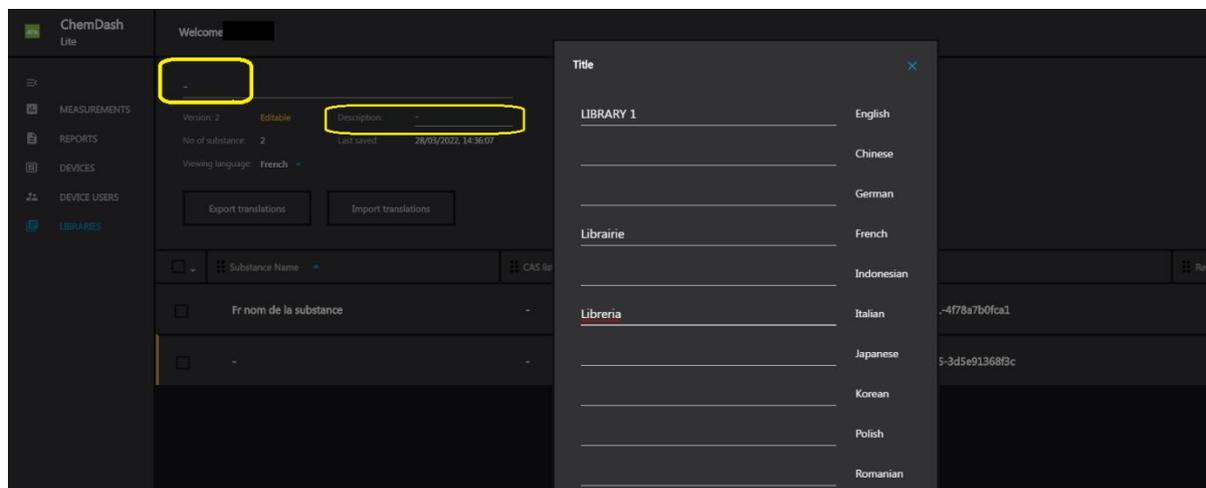
This close-up shows a row from the table with the following data: Name: 7723-14-0, CAS list: 000-911d5e74-d803-11ec-be0d-01ec4cs772de, ID: 000-911d5e74-d803-11ec-be0d-01ec4cs772de, and Regulatory Type: Narcotic; Precursor, Explosive; Precursor, Toxi...

The user has the option to change the language of the library, by clicking the arrow next to the language. For now, there are 15 options: English, Chinese, German, French, Indonesian, Italian, Japanese, Korean, Polish, Romanian, Spanish, Swedish, Russian, Ukrainian and Vietnamese.

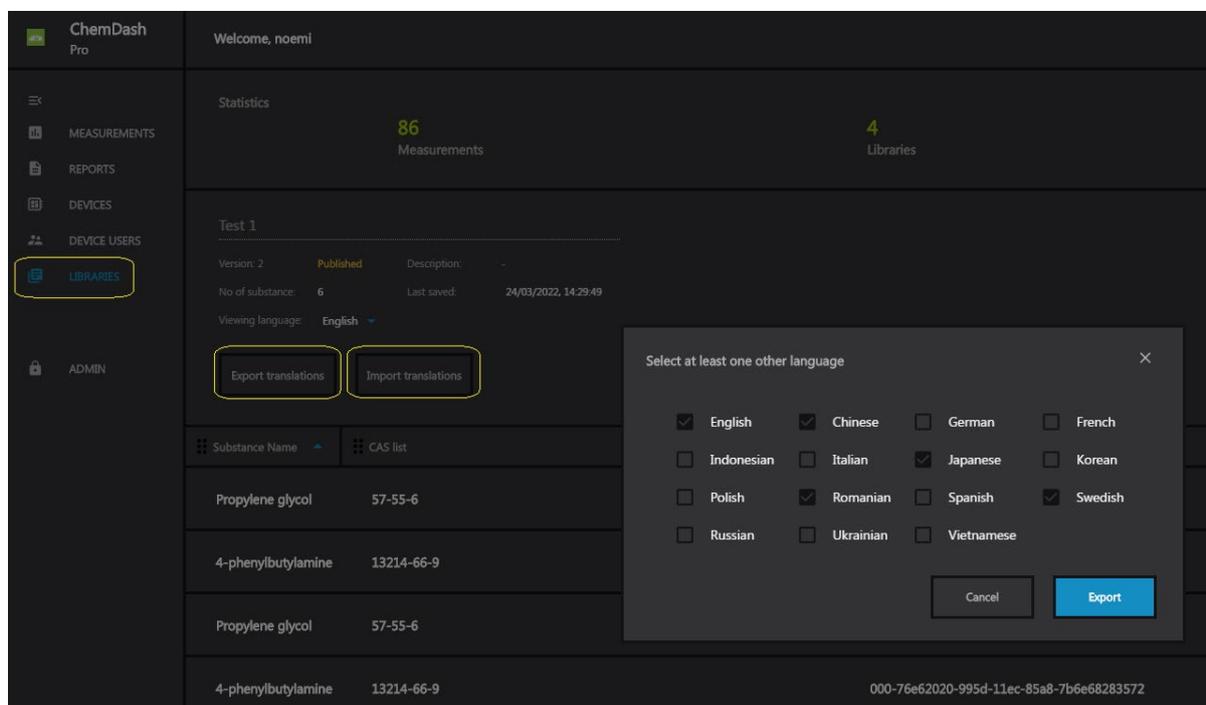


The screenshot shows the ChemDash Lite interface. The top navigation bar includes 'MEASUREMENTS', 'REPORTS', 'DEVICES', 'DEVICE USERS', and 'LIBRARIES'. The main content area displays 'Substance: A-35' and 'Substance languages: EN, FR'. A dropdown menu is open for 'Viewing language:', showing 15 options: English, Chinese, German, French, Indonesian, Italian, Japanese, Korean, Polish, Romanian, Spanish, Swedish, Russian, Ukrainian, and Vietnamese. The 'English' option is selected. There are also 'Measurement informat', 'Substance basic info', 'Substance name:', 'Substance synonym', 'CAS Number:', 'Substance class:', 'Supplemental notes', and 'Custom info:' sections visible.

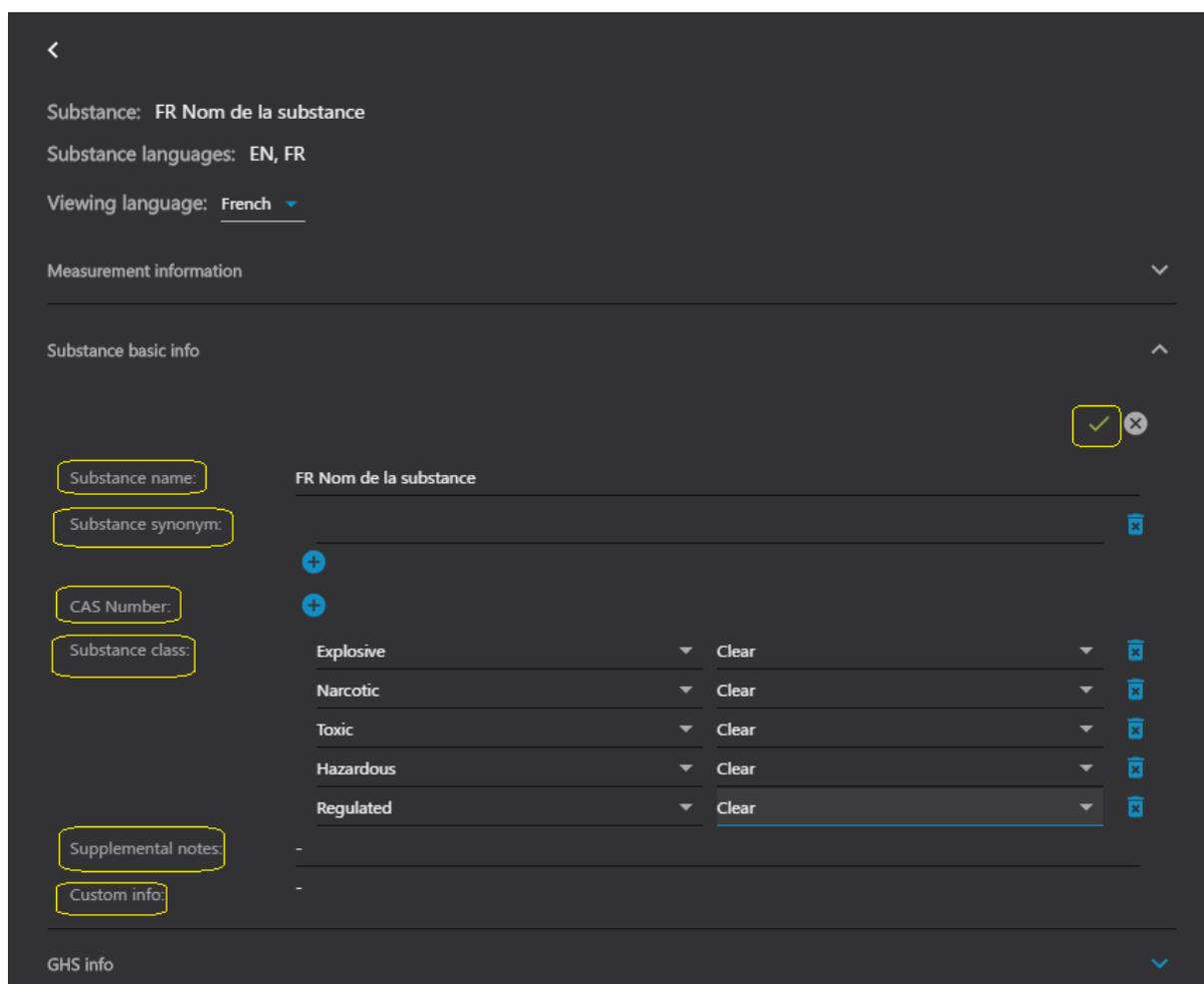
Once the user has selected the language, he/she will have the possibility to manually add the translation in that language for some fields, Title and Description of the library.



There is also the possibility to Import/Export the translations made for a specific library by clicking on the Import/Export buttons; then the desired languages must be selected and the location where to be saved must be chosen. A notification will announce that the operation was successful.



After having edited the details of the library, the user can edit some of the Substance details in the desired language.



Substance: FR Nom de la substance
Substance languages: EN, FR
Viewing language: French

Measurement information

Substance basic info

Substance name: FR Nom de la substance

Substance synonym:

CAS Number:

Substance class:

Explosive	▼	Clear	▼	✕
Narcotic	▼	Clear	▼	✕
Toxic	▼	Clear	▼	✕
Hazardous	▼	Clear	▼	✕
Regulated	▼	Clear	▼	✕

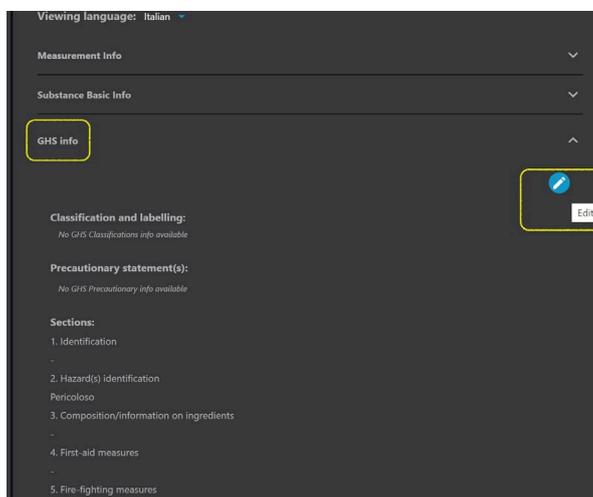
Supplemental notes:

Custom info:

GHS info

After having done all the editing, the Save symbol must be clicked. 

The GHS information can also be edited and translated by opening the GHS section and clicking on the pen symbol.



Viewing language: Italian

Measurement Info

Substance Basic Info

GHS Info

Classification and labelling:
No GHS Classifications info available

Precautionary statement(s):
No GHS Precautionary info available

Sections:

1. Identification
2. Hazard(s) identification
Pericoloso
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures

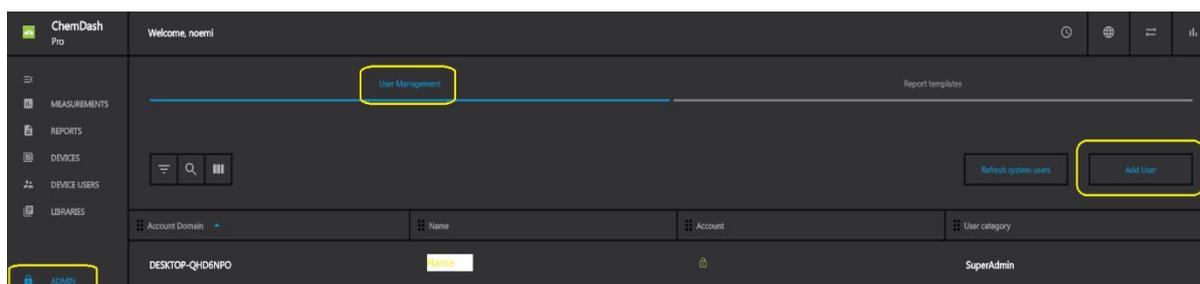
After having finished all the editing, the user must click on the Save button . In order to keep all the modifications, the user must click on Save changes button  and the whole library will be saved.

11. ADMINISTRATION

This section is only available for **Pro version** and the Users with administrative rights have access. From here, Users with administrative rights (Admin and the Super-Admin) can manage the ChemDash application User accounts and create new case report templates.

11.1. USER MANAGEMENT

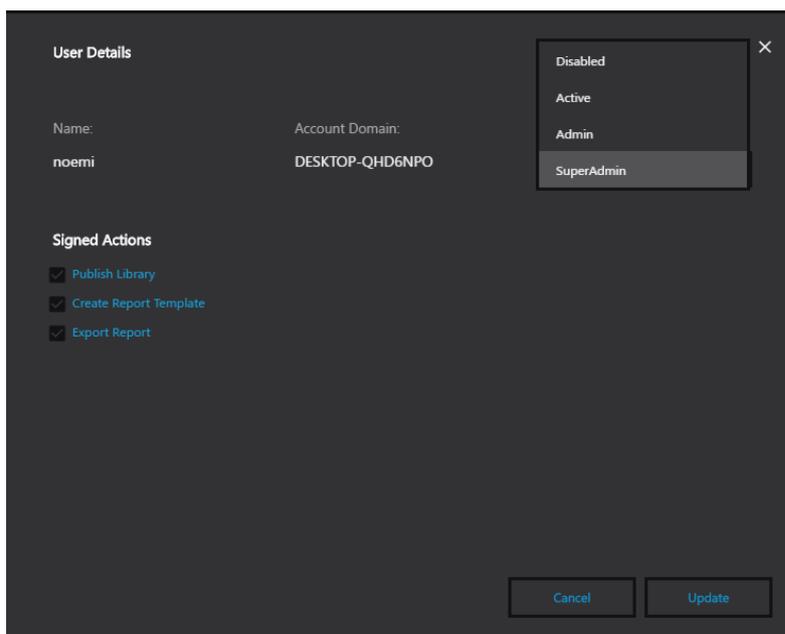
New users to the application are added under the User Management section. The User with administrative rights to the application can either import user accounts from the same Active Directory environment or Add User manually.



By clicking on the username in the list of users it is possible to give the user access to ChemDash. Important to mention that the User category should be chosen very carefully as each User will get different access privileges to the application. The available User categories are:

- 'Disabled' – this User's credentials will be de-activated.

- 'Active' – normal User with basic access that the Admin will provide.
- 'Admin' – this category has special rights: to create a User, to create report templates, to remove and add libraries.
- 'Super-Admin' – has the same rights as the Admin and he is the one who gives the first Admin rights to the established users.



User Details

Name: noemi Account Domain: DESKTOP-QHD6NPO

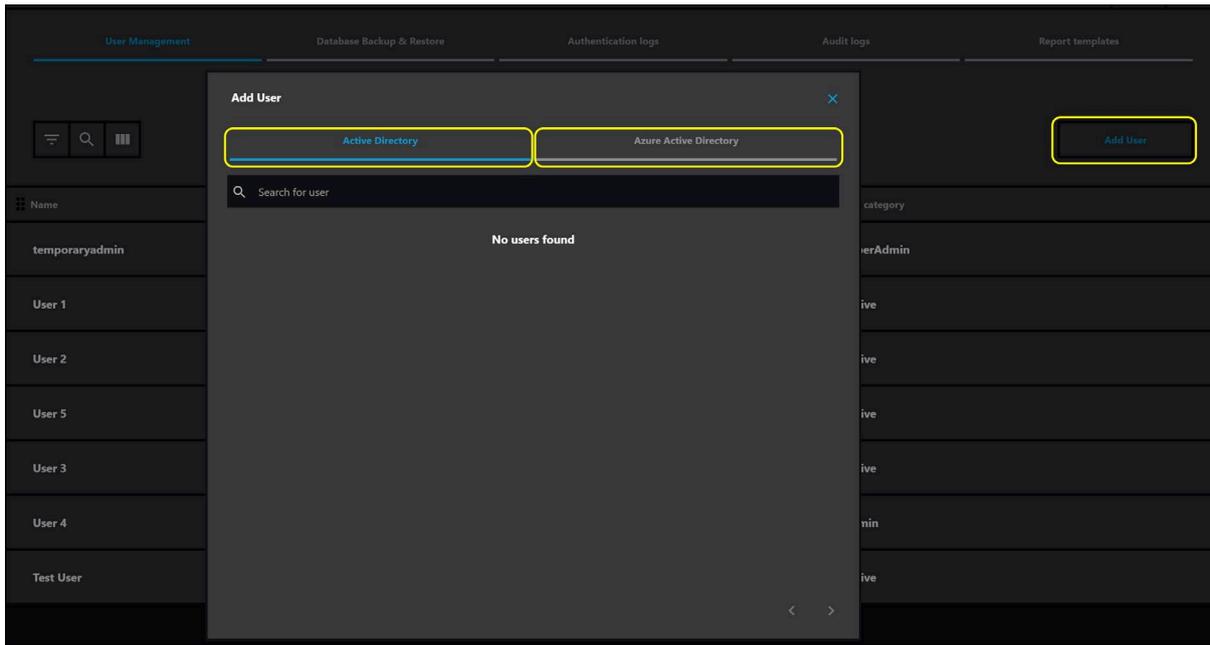
Signed Actions

- Publish Library
- Create Report Template
- Export Report

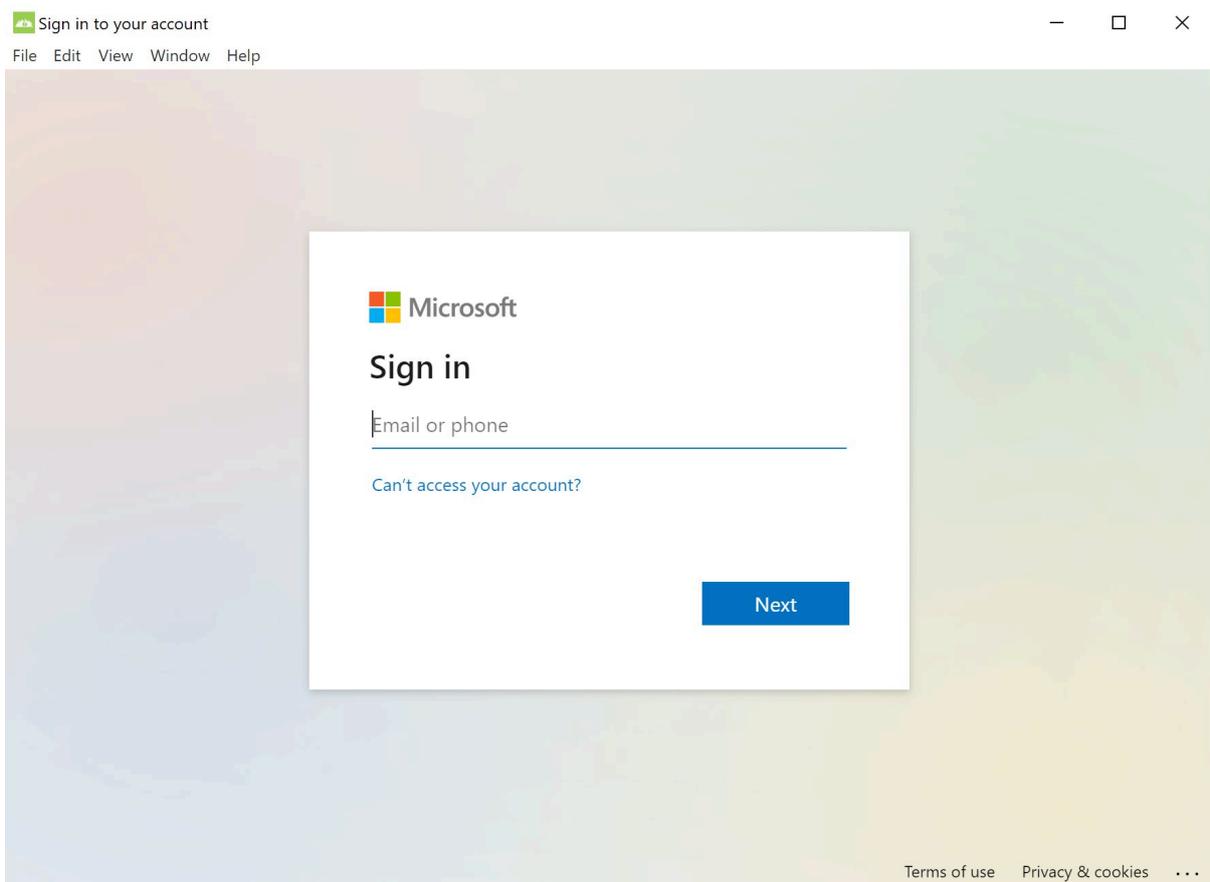
Disabled
Active
Admin
SuperAdmin

Cancel Update

A user not available on the list, and thus without access to ChemDash, can be configured as an instrument user from ChemDash; this can be done by clicking 'Add User'. When selecting the option 'Add User' a new window will pop up. One can select to add a User from the Active Directory or from Azure Active Directory. There is also the possibility to search for a specific user in the Search field.

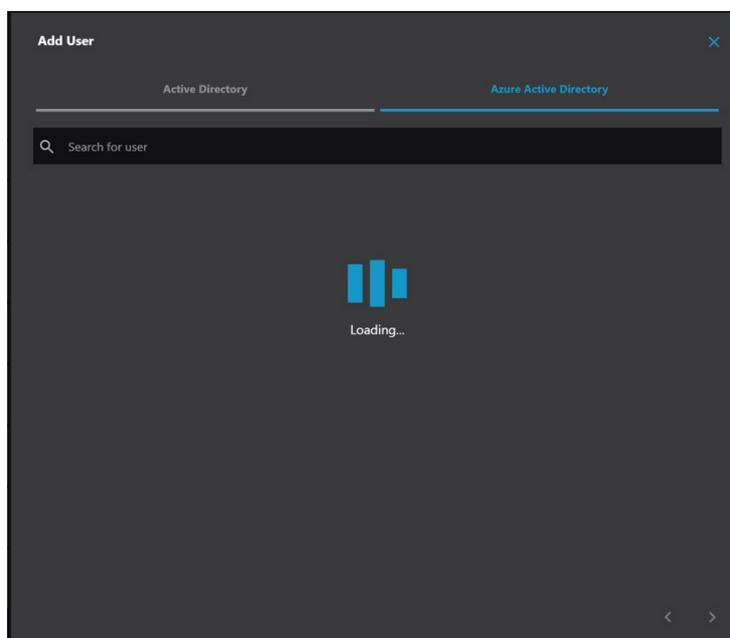


If the Azure Active Directory is chosen, the following screen will appear:



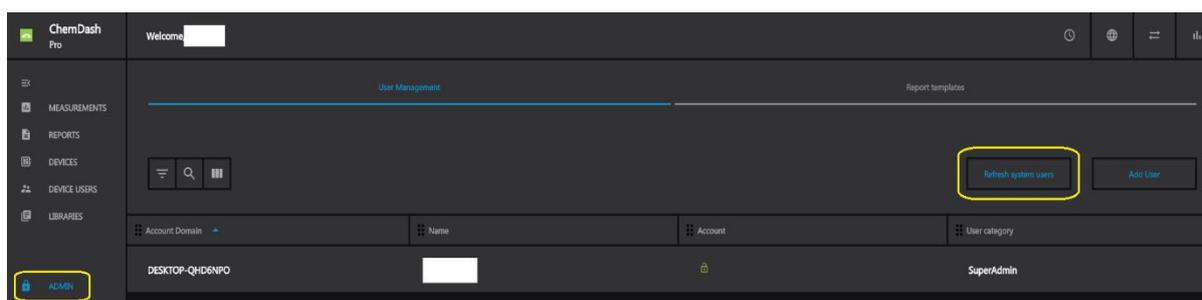
After the e-mail account is filled in, the User with administrative rights must fill in the password for this account and to finalize the authentication

process. After all the information is completed, a loading screen will appear:



Then, the whole list of Azure Active Directory will be displayed and the users to be added will be chosen by clicking the  button. These are the ChemDash users that will have access to the application.

It is also possible to make some changes on the PC, e.g. add a new user; in order to have those changes visible on ChemDash, there is the “Refresh system users” button that can be clicked and the list will be refreshed.



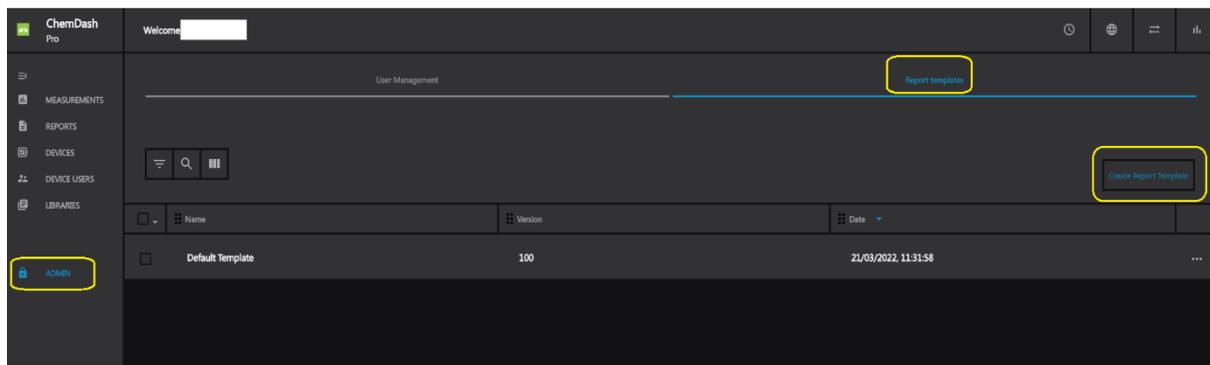
12. REPORT TEMPLATES

Another section that is visible only to the Admin and Super-Admin in the **Pro version** is the one related to the Report template creation.

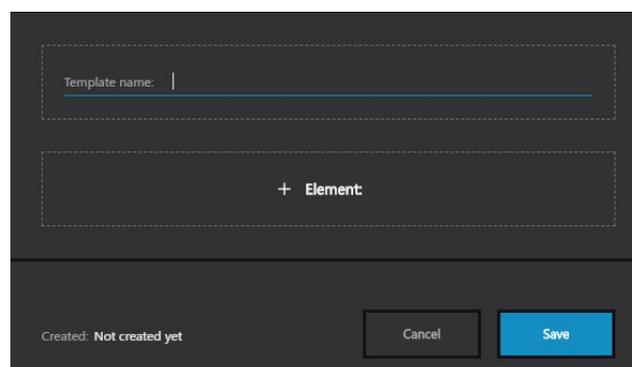
There are many situations that require a specific case or comparisons between measurements and data stored. The user can select which template to use in order to get a report that suits the needs. This can be done from the Reports section on the left menu.

ChemDash comes installed with a default template that can be used to create a report. Also, for **Pro version**, the Admin can create some personalized templates that would better suit the needs.

As mentioned before, only the Users with administrative rights to the application can create report templates under the 'Admin' section and then 'Report Templates'. A report template will allow the user to choose what elements (information) must be shown on a case report based on their specific needs.



When clicking the 'Create Report Template' button, the user must name the template and choose which elements are to be selected and displayed in the report.



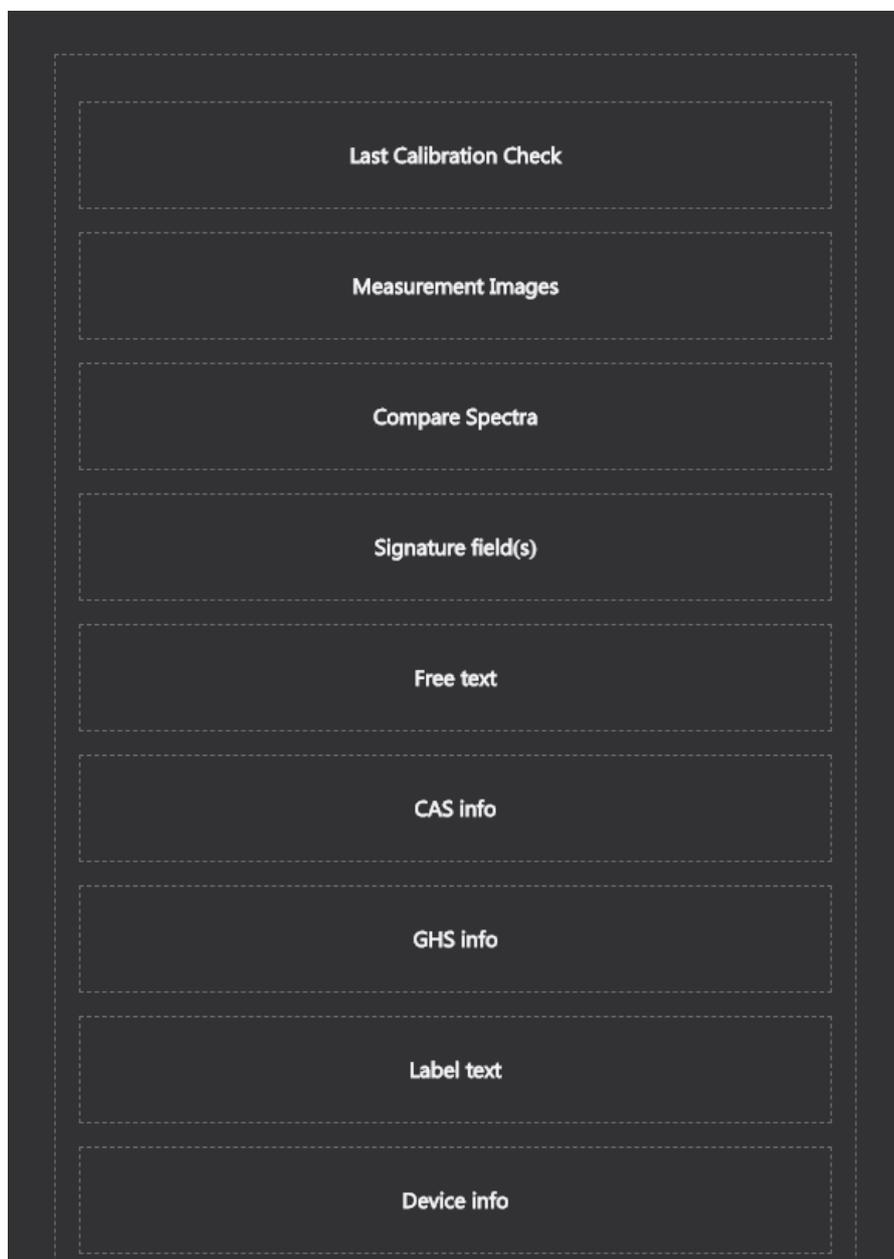
Template name: |

+ Element

Created: Not created yet

Cancel Save

The elements that can be selected are: Last Calibration checked, Measurement Images, Compare Spectra, Signature field(s), Free text, CAS info, GHS info, Label text, Device info, Measurement Meta Data, Measured spectrum, Identified substance name, Header and Logo.





These sections can be arranged in the desired order so that they appear on the report according to the User's needs by using the specific option ; the user must grab this symbol and move up/down the element that needs to be moved.

After creating the template as per one's needs, it must be saved; then there will be a pop-up saying that the report template was created.

By selecting "Create report" the measurement is included in a report. To include several spectra, follow the procedure for batch export.

Once the Admin has finished adding elements, click on 'Save', so the case report template will be saved and be available for further use.

The Admin has also the ability to remove a template from the ChemDash application, by clicking the expandable menu at the end of the row, then Remove.

After creating the template, the User can now create a case report.

13. LICENSING

Based on the type of license that the user has on the device, the ChemDash will be one of these variants:

- ChemDash Lite
- ChemDash Pro
- ChemDash Pro+ (that is described in a separate guide)



Has the following particularities:

- a Lite instrument connects, ChemDash becomes ChemDash Lite and will not accept connection from any other instrument
- Connectivity – only through USB
- Standard reports (default template)
- View measurements
- Measurement export
- Device update (FW)
- Manage custom libraries, but not import/export
- Number of total devices: 1

Since AD integration is not available in Lite, only local Windows users should be allowed, i.e. there is only one user of ChemDash and that is the Windows user logged in.

13.1. CHEMDASH PRO

In addition, the Admin tab appears and also it has the following features:

- Connectivity through USB and WiFi
- Import/export custom libraries
- Customized reports/report templates
- Customized device settings
- Advanced user management
- Report template creation
- Number of total devices: several, with no upper limit
- Active directory integration
- Backup and restore functionality

14. APPENDIX

14.1. HOW TO IMPORT USERS TO CHEMDASH

In order to import users in the application, the Admin must go to the Admin tab and click the “Add User” button; after having logged in again with the Microsoft credentials, there is the possibility to select the desired users to be imported by clicking on the  button. After the import is done, there will be a notification displaying that the users were added and the screen will be refreshed automatically.

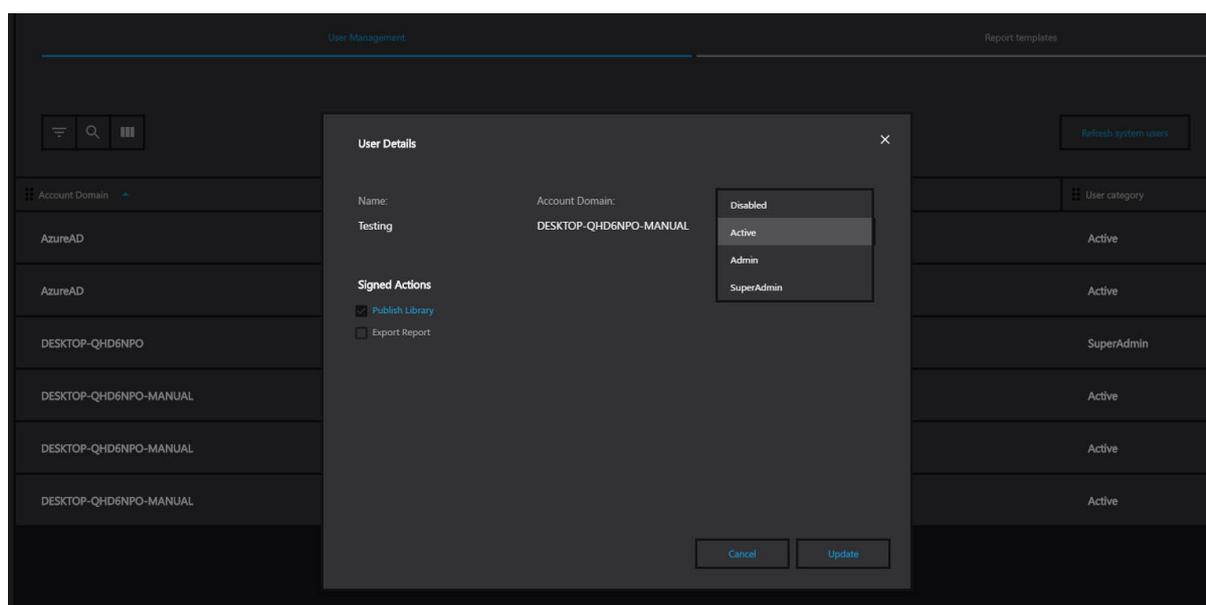
14.2. HOW TO SET DIFFERENT HIERARCHY LEVELS AND PRIVILEGES TO IMPORTED USERS

The hierarchy levels of the users is the following:

- ‘Super-Admin’ – has the same rights as the Admin and he is the one who gives the first Admin rights to the established users.
- ‘Admin’ – this category has special rights: to create a user, to create report templates, to remove and add libraries.

- 'Active' – normal user with basic access that the Admin will provide.
- 'Disabled' – this user's credentials will be de-activated.

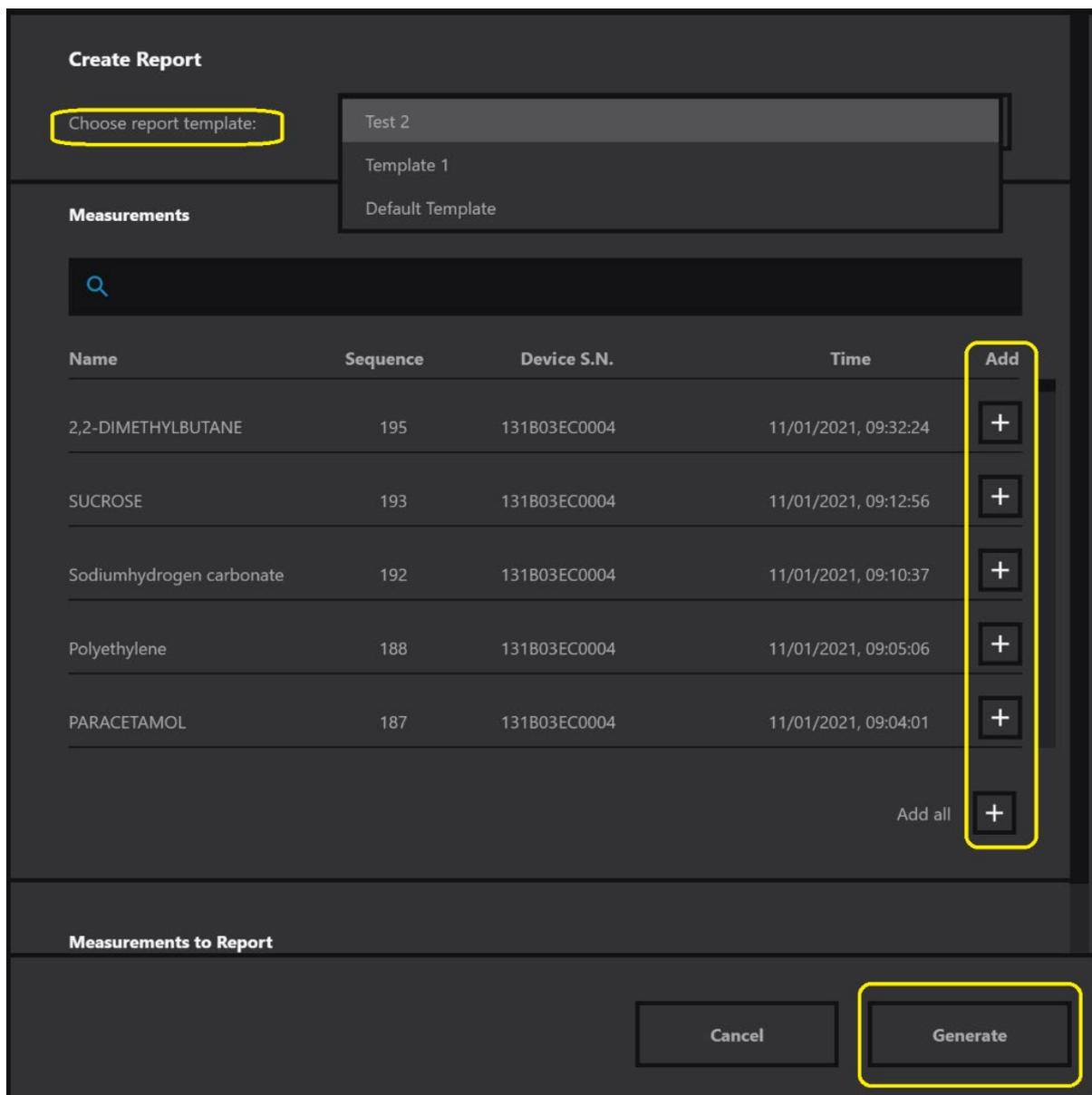
The Admin and the Super-Admin have the right to set privileges and establish rights for the users. In order to do so, they must go to the Admin tab, click on Users Management section and select the user they want to work on.



The Admin must select the different details to be changed (User category – level of access, Privileges).

14.3. HOW TO CREATE AND EDIT CASE REPORTS

A report can be created by clicking the 'Create Report' button. The User can now choose a report template and add a substance or substances that will be shown on the report and then click on 'Generate'.



Create Report

Choose report template: Test 2
Template 1
Default Template

Measurements

Search

Name	Sequence	Device S.N.	Time	Add
2,2-DIMETHYLBUTANE	195	131B03EC0004	11/01/2021, 09:32:24	+
SUCROSE	193	131B03EC0004	11/01/2021, 09:12:56	+
Sodiumhydrogen carbonate	192	131B03EC0004	11/01/2021, 09:10:37	+
Polyethylene	188	131B03EC0004	11/01/2021, 09:05:06	+
PARACETAMOL	187	131B03EC0004	11/01/2021, 09:04:01	+
Add all				+

Measurements to Report

Cancel Generate

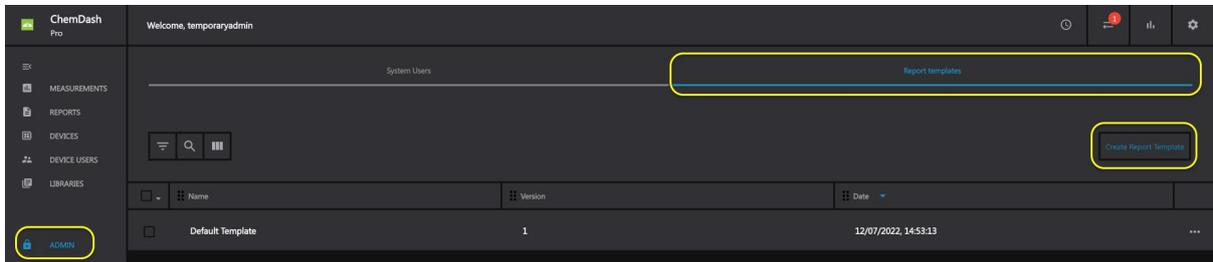
The case report is now saved in the Reports section.

The user will also have the option to download the report to the PC in a PDF format.

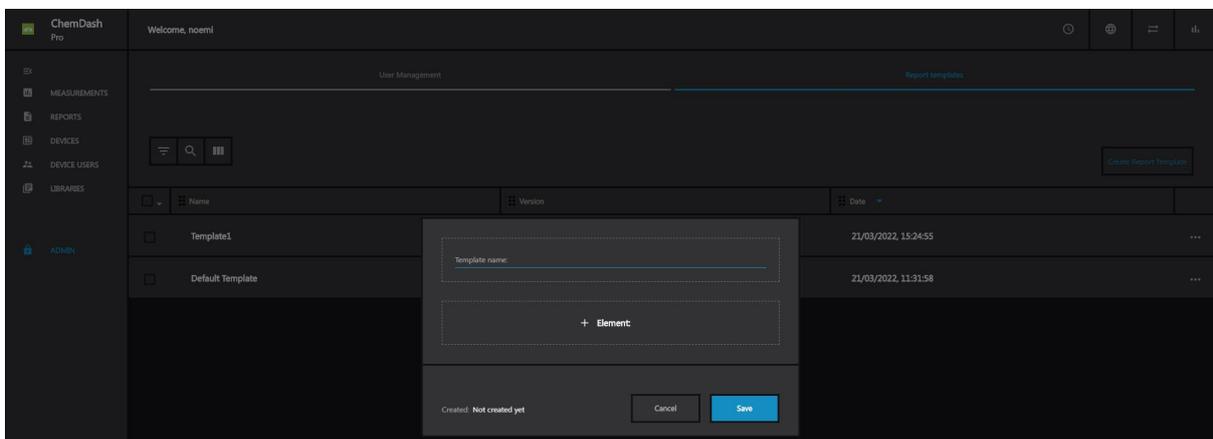
14.4. HOW TO CREATE CASE REPORT TEMPLATES

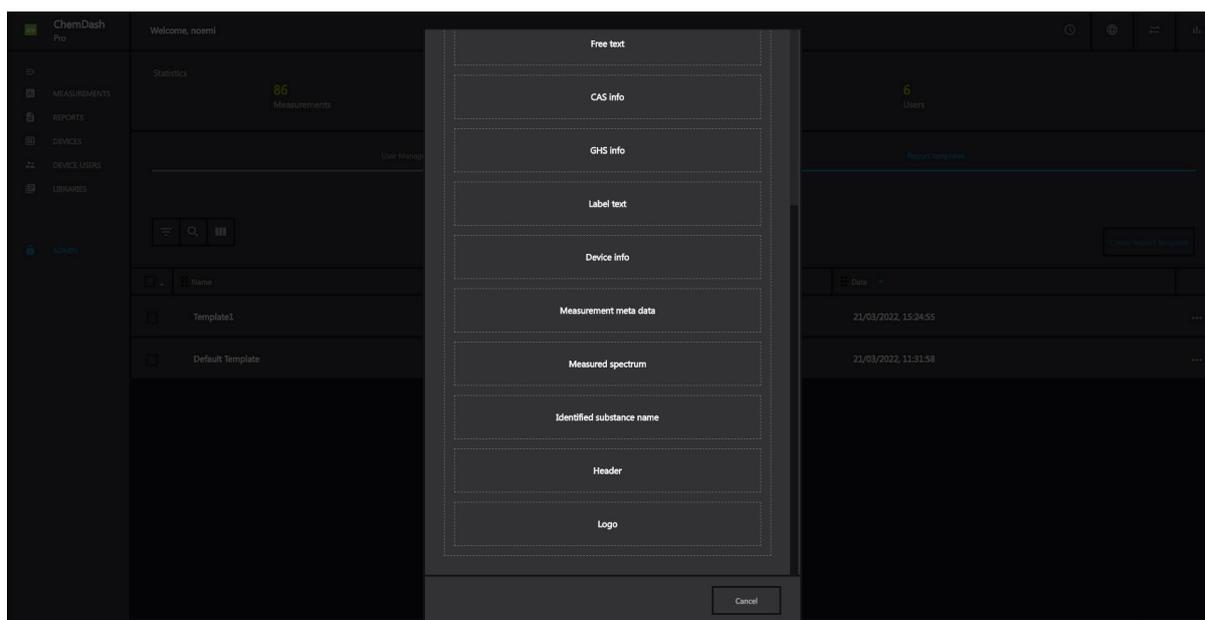
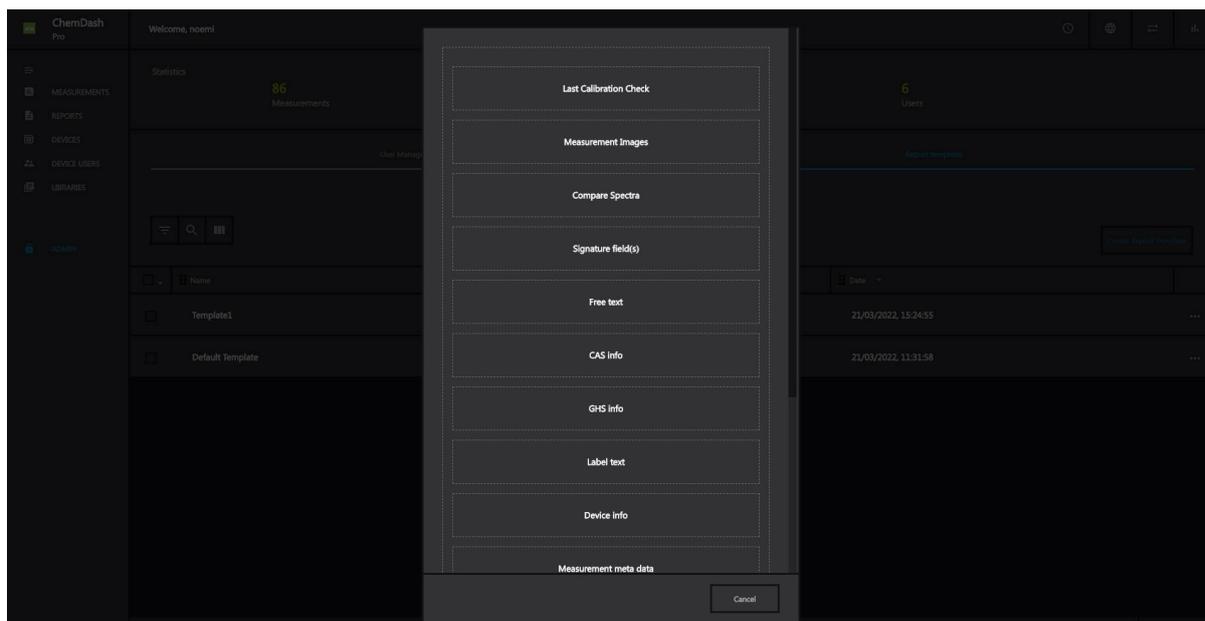
To create a report template, please go under the 'Admin' section and then 'Report Templates'. A report template will allow the user to choose what

elements (information) must be shown on a case report based on their specific needs.



The Admin can now select one or more Elements for the case report.



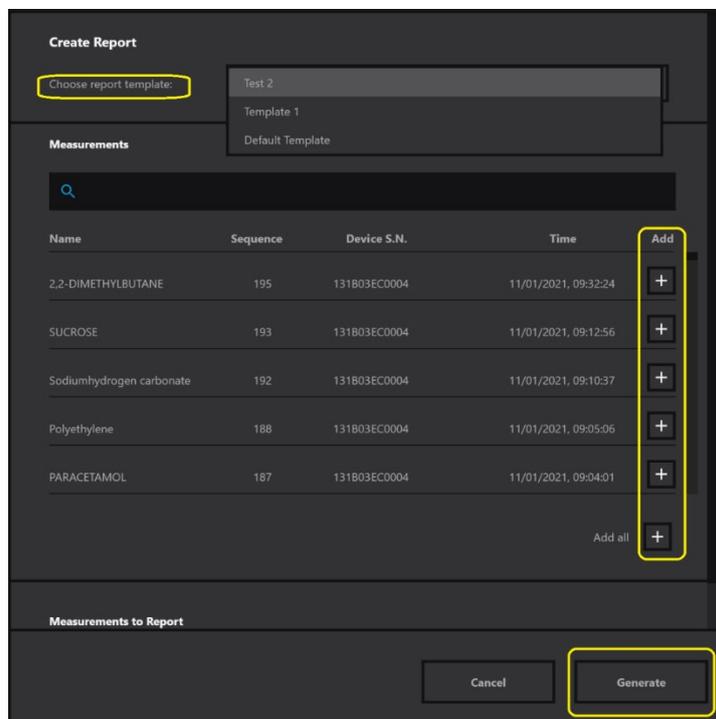


Once the Admin has finished adding elements, click on 'Save', so the case report template will be saved and be available for further use.

The Admin has also the ability to remove a template from the ChemDash application, by clicking the expandable menu at the end of the row, then Remove.

After creating the template, the User can now create a case report. A report can be created by clicking the 'Create Report' button from the Reports section on the left menu. The User can now choose a report template, for

Pro version or the Default template for Lite, and add a substance or substances that will be shown on the report and then click on 'Generate'.



Name	Sequence	Device S.N.	Time	Add
2,2-DIMETHYLBUTANE	195	131B03EC0004	11/01/2021, 09:32:24	+
SUCROSE	193	131B03EC0004	11/01/2021, 09:12:56	+
Sodiumhydrogen carbonate	192	131B03EC0004	11/01/2021, 09:10:37	+
Polyethylene	188	131B03EC0004	11/01/2021, 09:05:06	+
PARACETAMOL	187	131B03EC0004	11/01/2021, 09:04:01	+
Add all				+

The case report is now saved in the Reports section.

The user will also have the option to download the report to the PC in a PDF format.

14.5. HOW TO CONNECT THE DEVICE TO CHEMDASH VIA USB

If the User wishes to connect the device to the ChemDash application using the USB cable the following procedure must be kept in order:

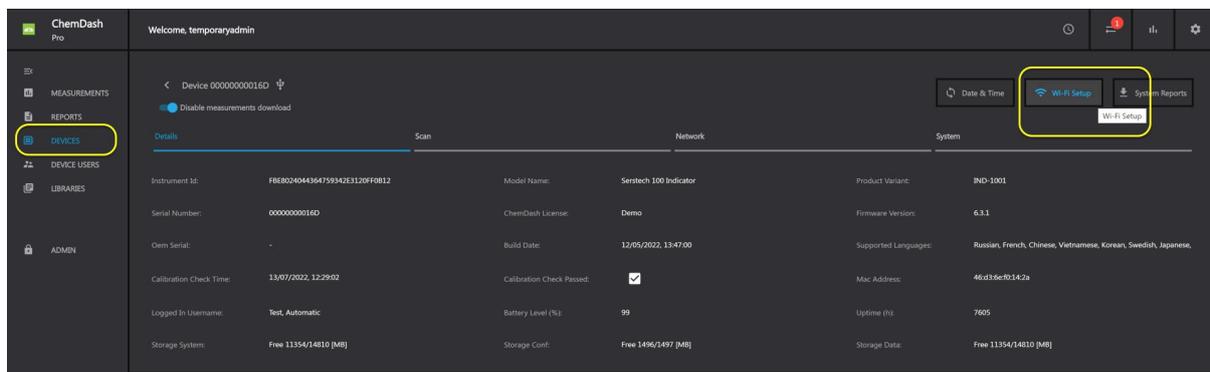
- Make sure that the instrument is switched off and that the ChemDash software is not running
- Connect the instrument and the PC via the USB cable
- Start the software ChemDash software
- Start the instrument and log in as Admin using your own credentials.

Please note, that the instrument and ChemDash communicate via port 9093 and some fire walls need to be configured to allow traffic on this port. If you get any error messages about communication via port 9093 then it's most likely that your PC firewall needs to be configured to allow traffic via port 9093.

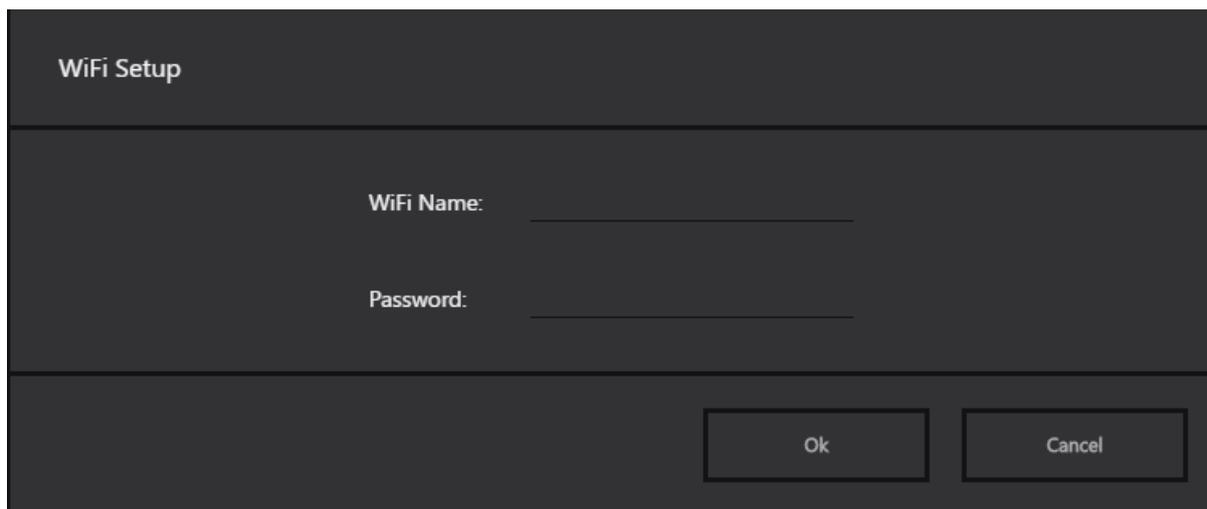
14.6. HOW TO CONNECT THE DEVICE TO CHEMDASH VIA WI-FI

To connect the instrument using a WiFi connection:

1. Start ChemDash.
2. Connect the instrument via the USB cable, turn it on and log in as admin.
3. Go to Settings on the device and then to Wi-Fi and activate it.
3. Go to Devices section, select the instrument you have connected and click on it so that the details are displayed.



4. Click on the “Wi-Fi setup” button.
5. Fill in the Wi-Fi name and password



WiFi Setup

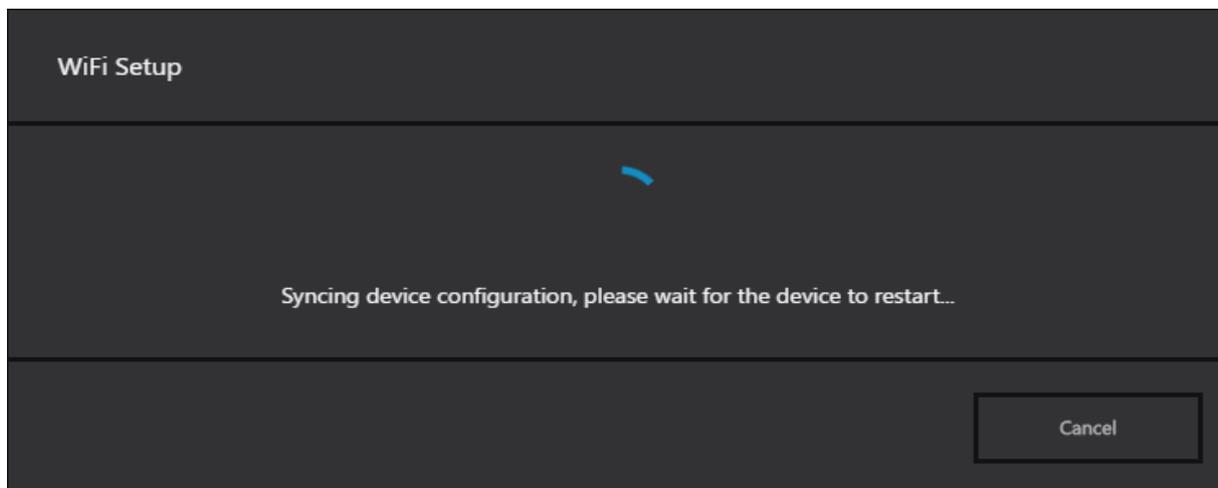
WiFi Name: _____

Password: _____

Ok Cancel

7. After the setup it is done, the information needs to be sent to the instrument. Sync the instrument with ChemDash, by clicking on the Sync icon.

9. The instrument will now automatically restart. Remove the USB cable and insert the Wi-Fi adaptor. A message pops up and shows that the device was connected.



WiFi Setup

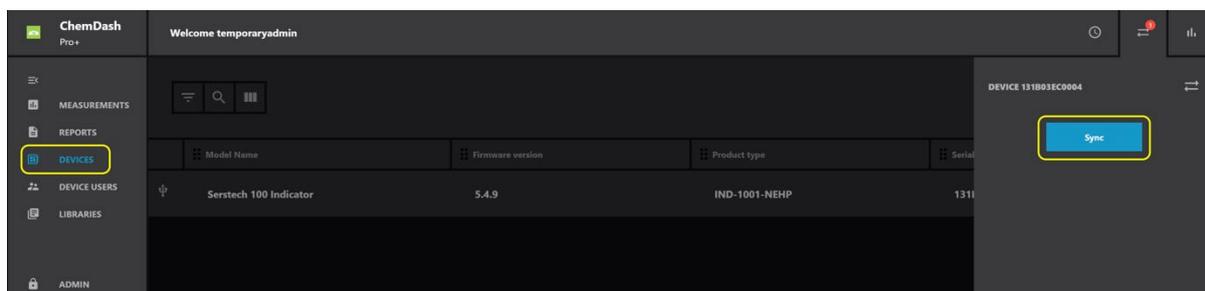
Syncing device configuration, please wait for the device to restart...

Cancel

Important to note that when the instrument goes into sleep mode, the wireless connection is lost.

14.7. HOW TO SYNCHRONIZE THE DEVICE

Sync the instrument with ChemDash, by clicking on the Sync icon. If the instrument is connected via USB cable or WiFi, the synchronization will take place immediately, causing a restart of the device. If the instrument is not connected, the synchronization will happen when the device will be connected to the app.



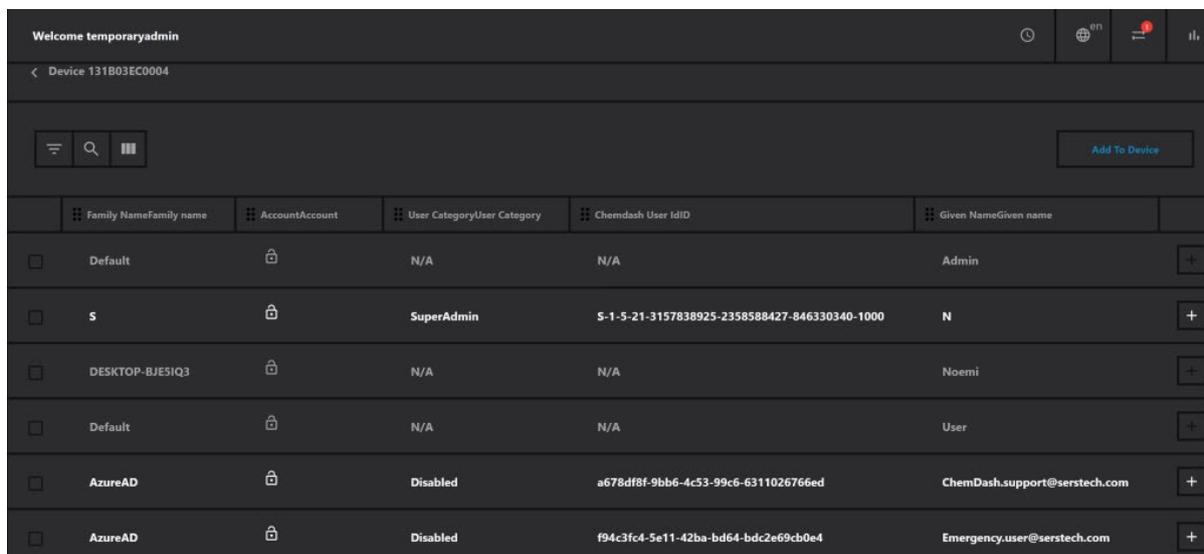
14.8. HOW TO MANAGE THE DEVICE THROUGH CHEMDASH

The instrument can be handled via the application by entering the Devices section; there the User can see all connected devices to the app. By clicking the expandable dots, he/she can see all the commands given to the device, the Logs, update the Firmware or restart the device. By clicking on a specific device, several sections will appear: Details, Scan, Network and System. By connecting any instrument to the application, it will automatically pair with ChemDash.

14.9. HOW TO ADD DEVICE USERS THROUGH CHEMDASH

In order to add some users to the selected device, the Admin must enter the Device details tab and then from the Users section, he/she must click on 'Add Users' button. Another window will open displaying all the available

users that can be added. The ones that are already there, are greyed out so they cannot be selected anymore.



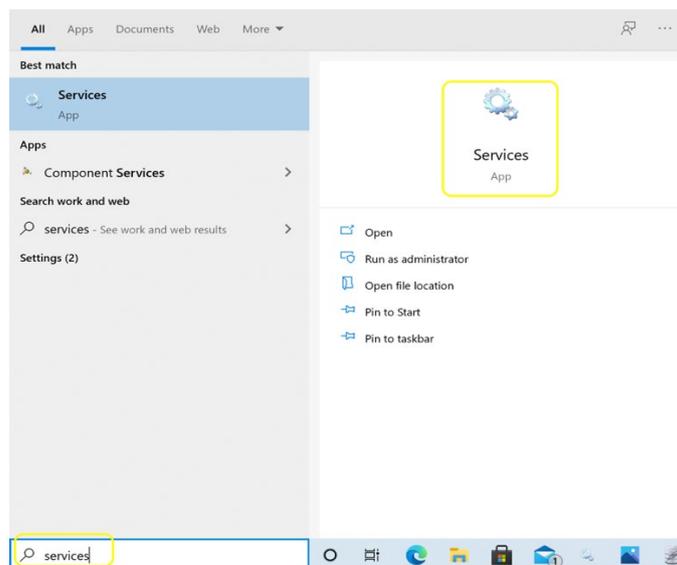
	Family NameFamily name	AccountAccount	User CategoryUser Category	Chemdash User IdID	Given NameGiven name	
<input type="checkbox"/>	Default	🔒	N/A	N/A	Admin	+
<input type="checkbox"/>	S	🔒	SuperAdmin	5-1-5-21-3157838925-2358588427-846330340-1000	N	+
<input type="checkbox"/>	DESKTOP-BJESIQ3	🔒	N/A	N/A	Noemi	+
<input type="checkbox"/>	Default	🔒	N/A	N/A	User	+
<input type="checkbox"/>	AzureAD	🔒	Disabled	a678df8f-9bb6-4c53-99c6-6311026766ed	ChemDash.support@serstech.com	+
<input type="checkbox"/>	AzureAD	🔒	Disabled	f94c3fc4-5e11-42ba-bd64-bdc2e69cb0e4	Emergency.user@serstech.com	+

After having selected the desired users, we click on “Add to Device” button and the action is done.

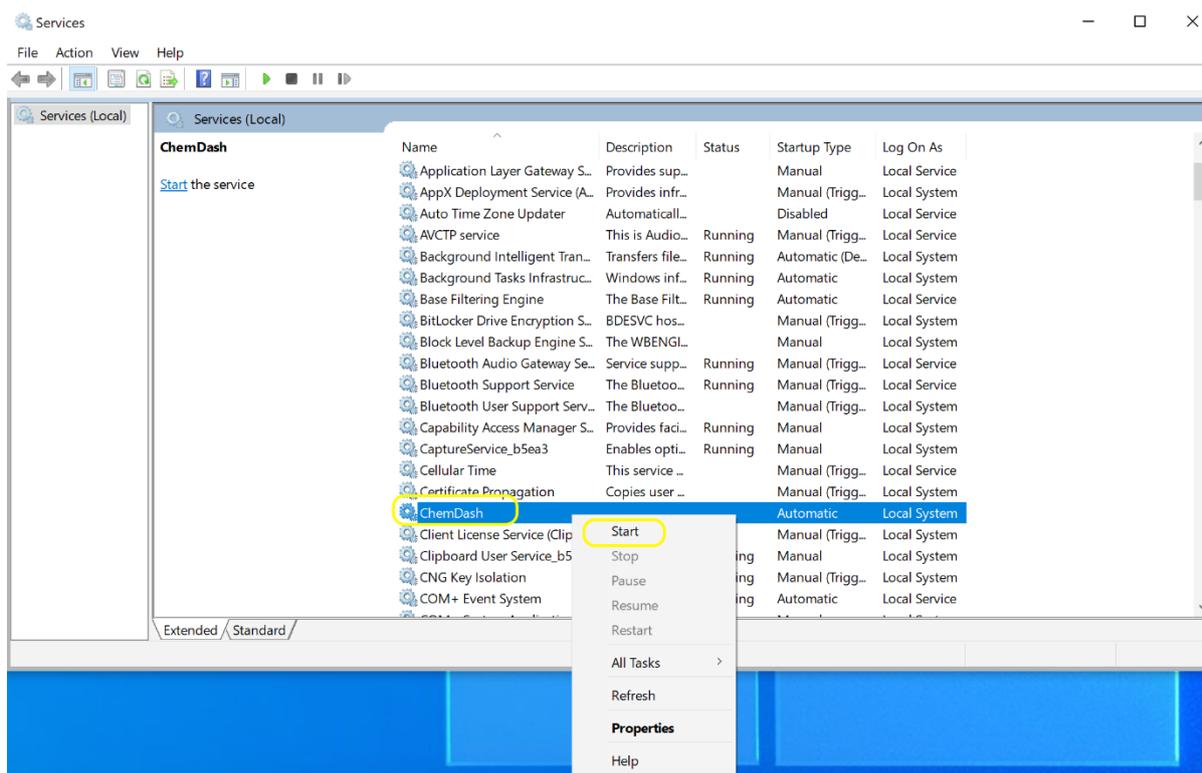
14.10. HOW TO USE CHEMDASH ONE AND CHEMDASH IN PARALLEL?

If there is an older version of ChemDash, like 1.0, and there is also this newest version of ChemDash, the two applications can run on the same computer, but not at the same time, as they are both listening to port 9093.

In order to start ChemDash, the user must follow the normal installation steps. Then, to start the service for ChemDash, the user must access the Services app (write in the start bar “Services”)



After opening the Services, a list with all available services will be displayed. The user must select ChemDash from the list and right-click on it



After the service is started, ChemDash will run.

If the user wants to run again ChemDash One, all that needs to be done is to enter again Services, as previously shown, find ChemDash service and Stop it (right-click it and then "Stop"). After that, the older version of ChemDash will start as usual.

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