CYRACO

User Manual

Introduction

The CYRACO system aims to digitalize the testing, inspection & certification industry, while automating supply chain monitoring.

The scope of the document is to present the features and their functionality of the CYRACO system which encompasses the following platforms:

- The Tower (a web application)
- The Inspection Device (an Android-based application: Android Device & Smart Glasses)
- The Box (a modular set of hardware that includes a main processing unit, a security layer and a storage environment, as well as IoT sensors and connectivity modules)

CYRACO is developed specifically for fully remote inspections, allowing the auditor to perform all necessary tasks, enhancing the experience with Augmented Reality and assisting the inspector through Artificial Intelligence over a user-friendly SaaS portal. The auditor uses this portal, i.e. the tower control, to contact the venue and start the inspection at any time. The auditor unlocks the equipment box remotely, allowing any worker to retrieve the glasses and walk the venue along the predetermined route set by the auditor. Local personnel will need to comply with inspection requirements, as specified always in strict supplier terms and conditions. Whilst moving, the scanner captures the inspection data and streams it directly to the tower. During the inspection, the tower control stays in direct contact with on-site personnel, who receive walk path guidance in real-time through a GUI projected directly on the glass lenses. Tower and venue personnel can also talk to each other via integrated talkback. The box contains the necessary storage, power supply, connectivity and networking hardware to upload inspection data and download firmware updates. To protect the system from tampering, all data is encrypted and all hardware is encased inside the locked box. It is monitored 24/7 with sensors and alerts that automatically trigger security counter-measures.

Author	Version	Date	Comments
Lia Papathanasiou	1.0.0	Dec 1st, 2021	Draft Version
Lia Papathanasiou	1.1.0	Jul 20th, 2021	
Joaquín Calvo de Nó	1.2.0	Feb 24th, 2023	

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1. Tower

The Cyraco Tower is the central web application with which the user is able to manage the inspection data such as the users, the locations, the inspections. The Tower is actually the administrative tool in which the inspections/audits are planned, executed and validated accordingly. Hence, the web application has been designed for the inspectors, so it is accessible to both client administrator users and regular client users (auditors) who are assigned to the respective roles.

Depending on the role, the logged-in user is able to access and use the eligible functionalities such as:

- AI functionalities
- BOX functionalities
- Dynamic inspection/audit checklists
- Videoconferencing with remote users
- Visualizing AR progress of inspections
- Logging any type of data during an inspection (audio, video, photo, notes, etc.)

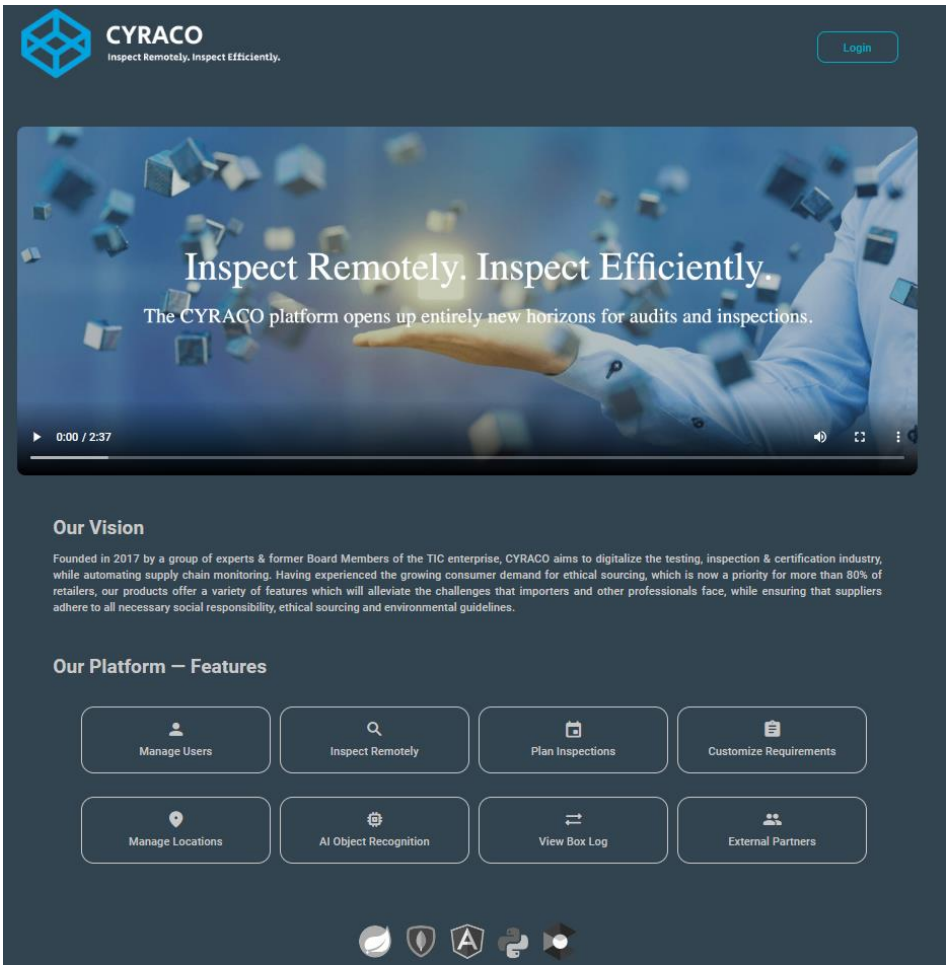
1.1. Quick Start

It is recommended the admin user to follow the below steps for a proper configuration set up:

- Define the Locations
- Create the users
- Define the Templates (Requirements)
- Book an Inspection

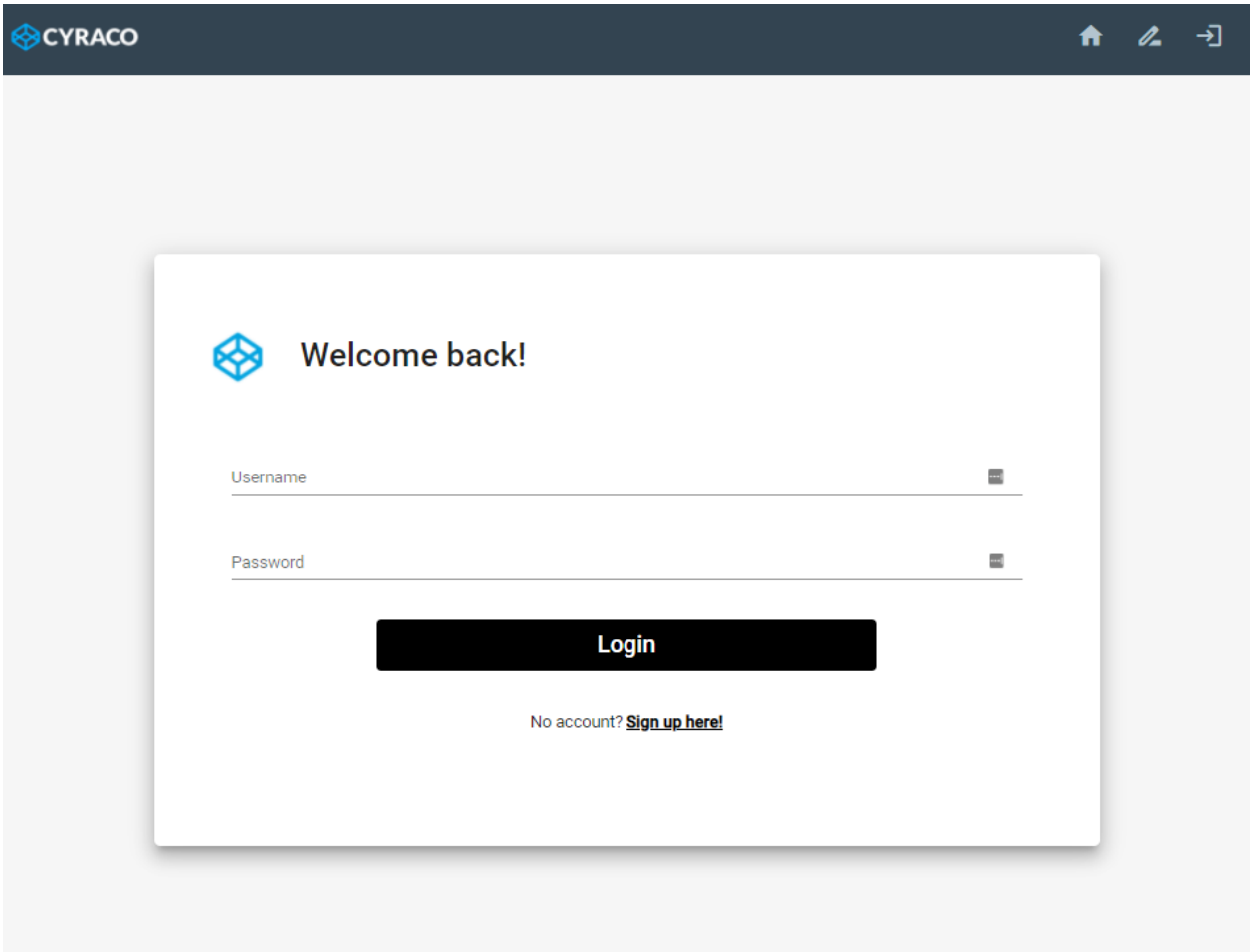
1.2. Login

The user navigates to the CYRACO landing page as per the below screenshot and he is able to log in.



Cyraco Tower Landing Page

By clicking on **Login** button, the user is redirected the login screen in which the **Username** and **Password** is required so that the user is able to access the application. Once the user provides the valid credentials and taps on **Login** button, he is redirected to the **Dashboard** screen.



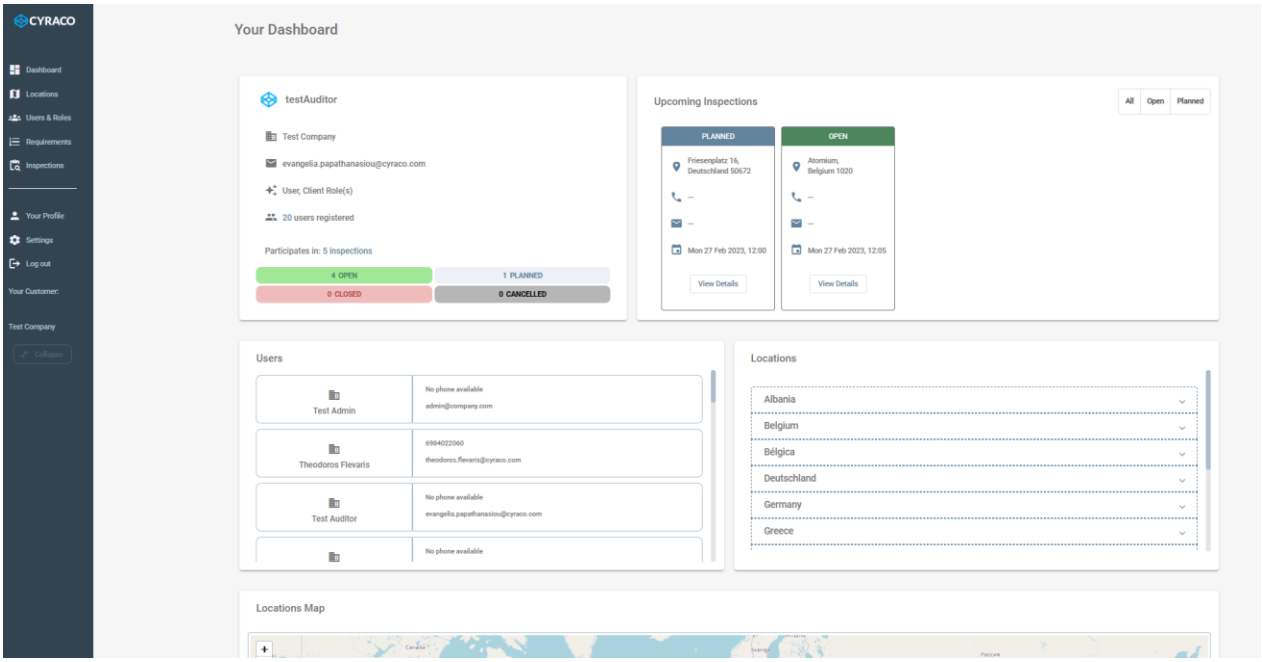
Login screen

1.3. Dashboard

Since the user is successfully logged in, he is redirected to the **Dashboard** screen in which their details are displayed as well as extra information and the available functionalities depending on the user's role.

In case the role of the logged-in user is CLIENT role, he views the following sections:

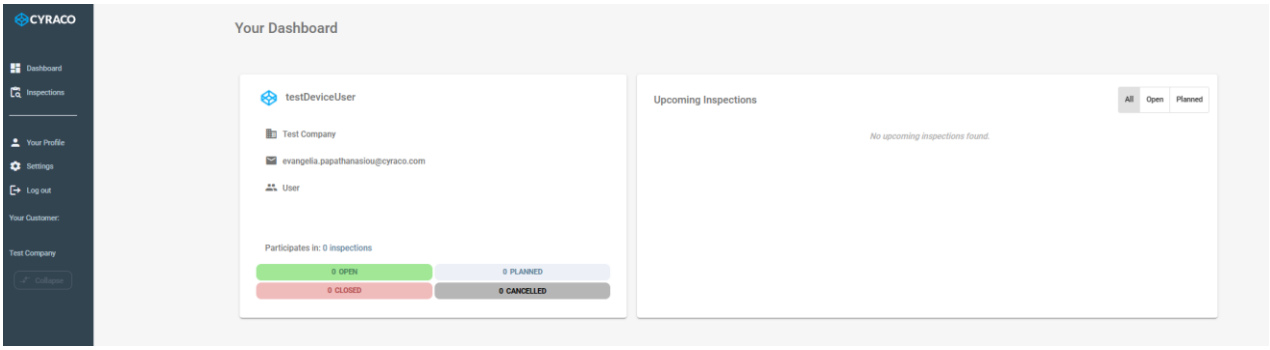
- Personal details
- Upcoming Inspections
- Client Users
- Locations
- Locations map



Client Admin – Dashboard screen

In case the role of the logged-in user is USER role, he views the following sections:

- Personal details
- Upcoming Inspections

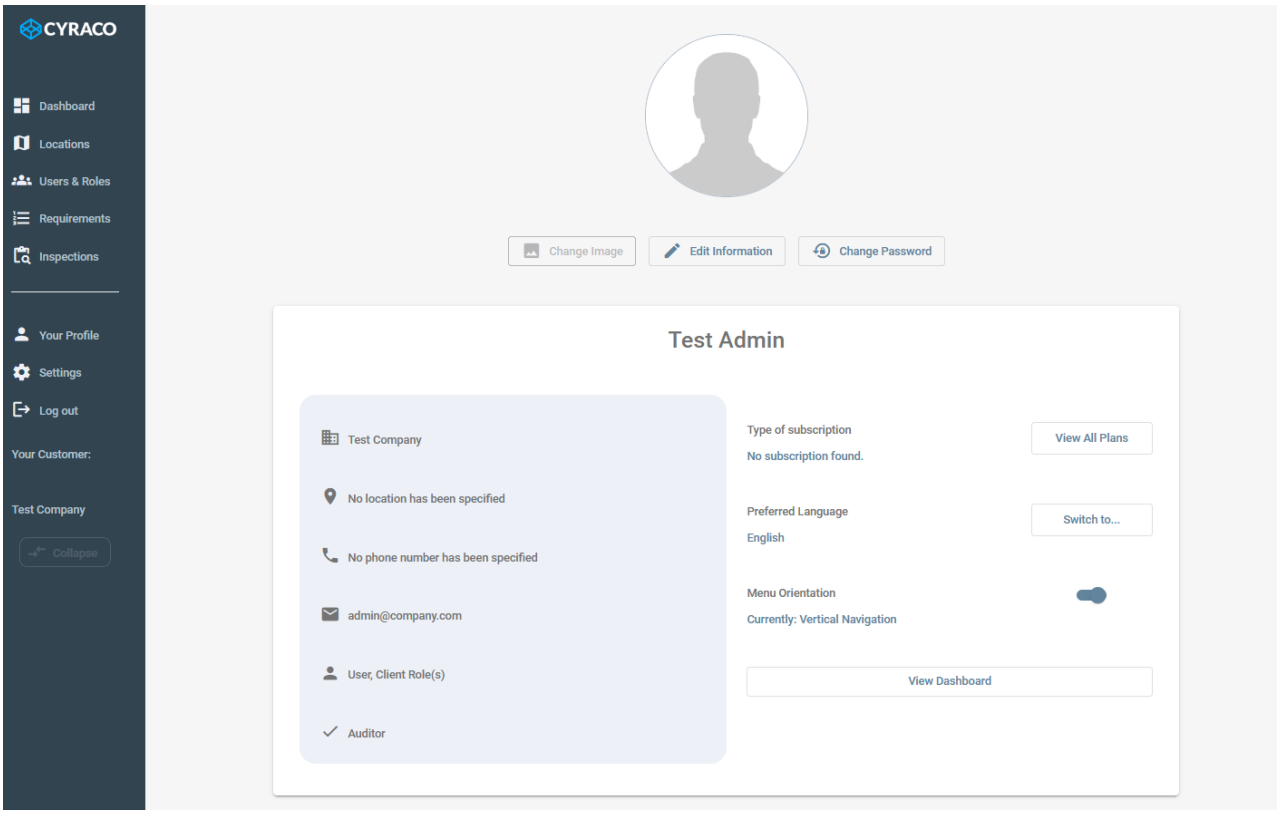


Standard User – Dashboard screen

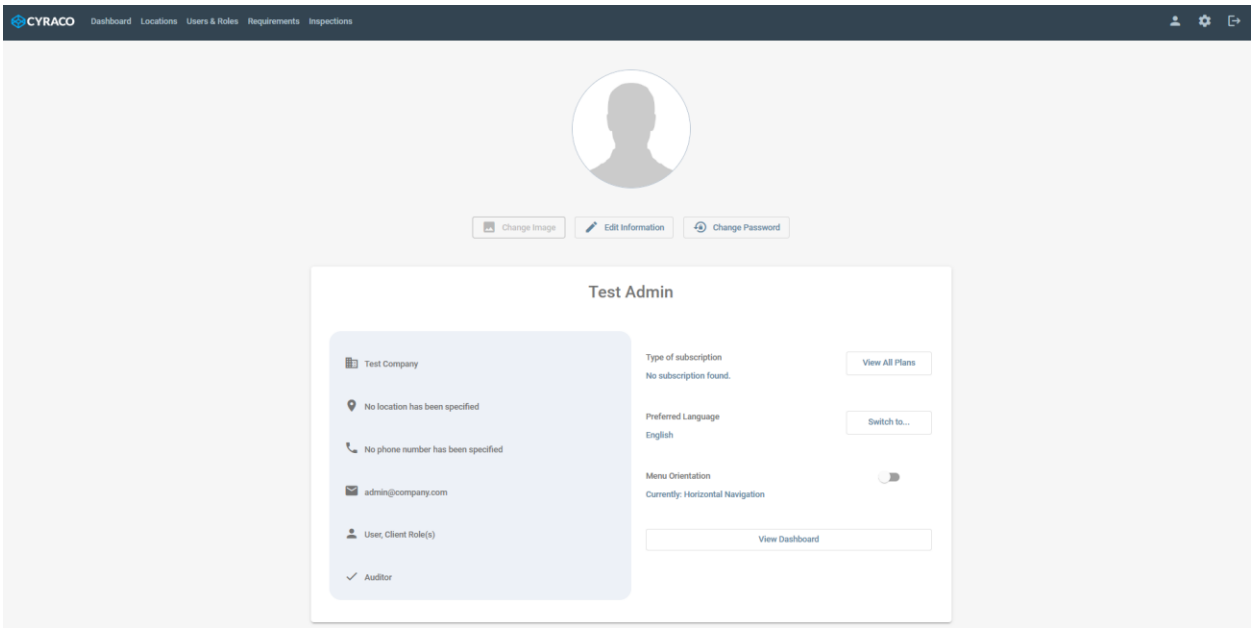
1.4. Profile

The profile page is available to all user roles. It displays the main user details, including assigned customer, location, phone, email, roles and additional properties. It displays the corresponding subscription type and preferred language.

It also allows them to customize the look and feel of the tower, by choosing the preferred navbar orientation (horizontal or vertical). This setting can be changed dynamically at any moment.



Profile page – Vertical Navbar



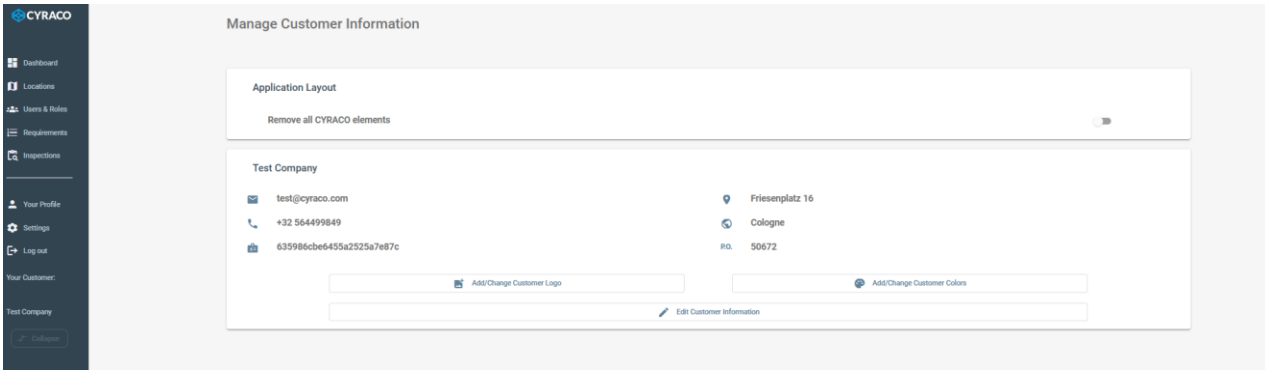
Profile page – Horizontal Navbar

1.5. Settings

The **Settings** menu is accessible only for the users with the CLIENT role, and they are able to view/edit the customer's information details, remove any CYRACO branding and add custom branding, such as by **Adding/Changing a Logo** and **Adding/Changing a Color Palette**.

1.5.1. Customer Information

The customer's contact details are displayed as below:



Customer's Information screen

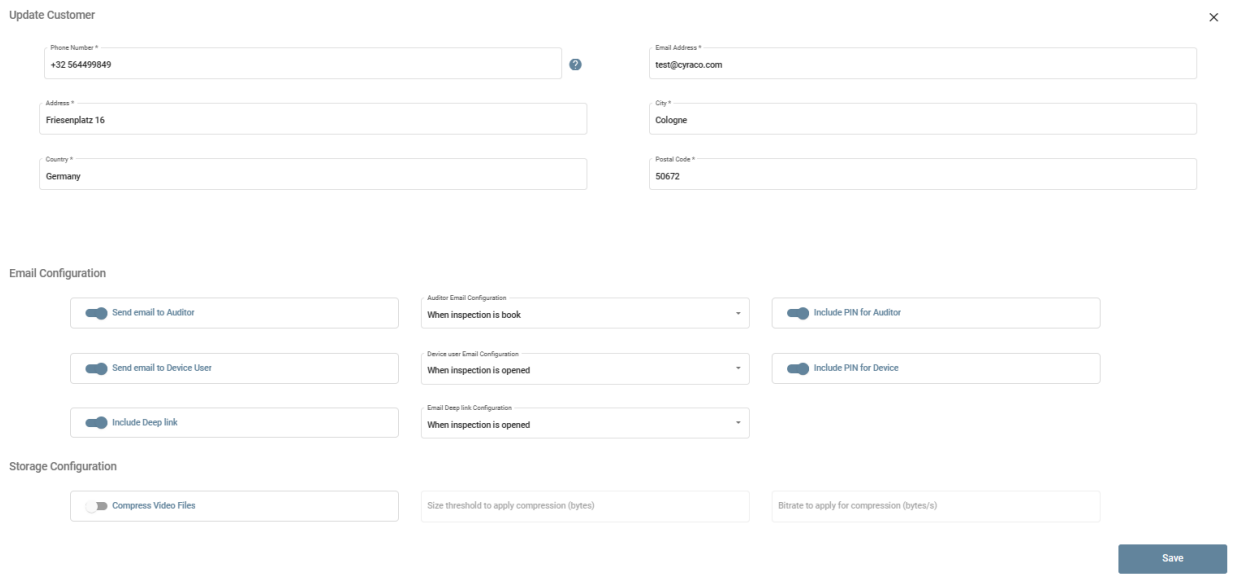
1.5.2. Edit Customer Information

By clicking on **Edit Customer Information** button, a pop-up window is presented in which the customer's contact details are displayed and can be modified:

- Customer Phone Number
- Customer Email Address
- Customer Address
- Customer City
- Customer Postal Code

Additionally, the CLIENT user is able to customize the portal behavior with regards to email notifications, to define which inspection users (auditor, device user, both or none of them) should receive email notifications, and when (when an inspection has been booked and/or when it is started).

Finally, the CLIENT user is also able to define a video size threshold from which to apply a specific compression bitrate to all recorded inspection videos, in order to optimize the storage usage to their requirements.



Update Customer's Contact Details screen

*Note: The user can discard any modifications by clicking on the **X** icon on the top right of the window.*

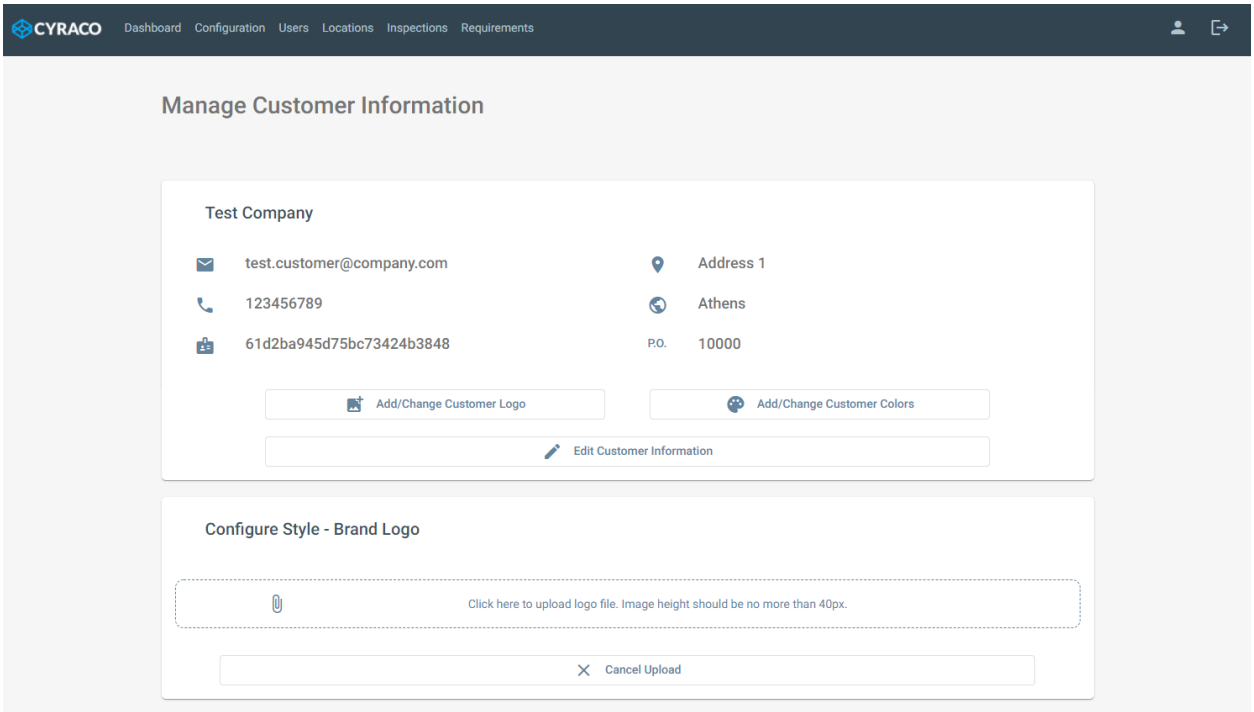
1.5.3. Add/Change Customer Logo

Other than that, the user can add their customer brand logo by tapping on the **Add/Change Customer Logo** button and the **Configure Style – Brand Logo** section is presented.

In the **Configure Style – Brand Logo** section, the **Upload Logo File** and the **Cancel Upload** options are available

By clicking the **Upload Logo File** button, a file picker window is displayed in which the user is able to access their local files, select and upload an image file.

The section can be dismissed by tapping the **Cancel Upload** button.

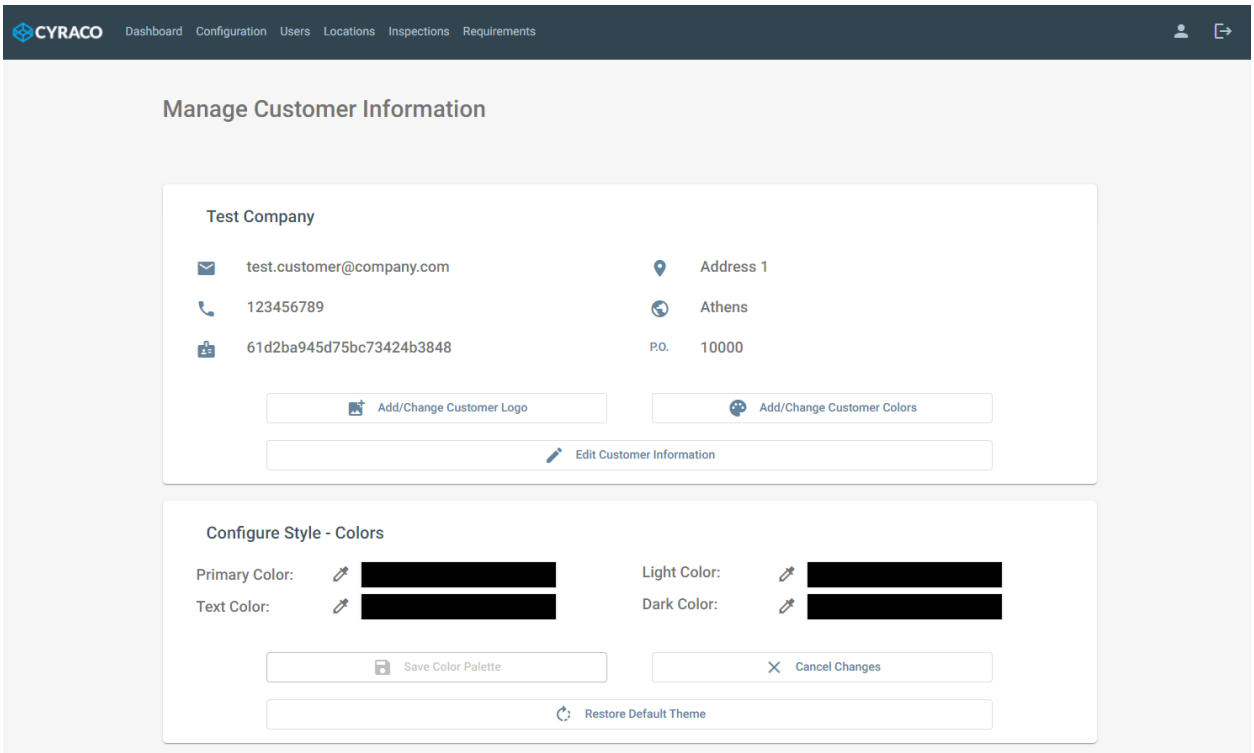


Add/Change Customer Logo screen

1.5.4. Add/Change Customer Colors

Moreover, each customer can customize the default colors by selecting their own branding colors which are applied to all users' interfaces per customer.

The **Configure Style – Colors** section is presented when the user clicks on **Add/Change Customer Colors** button. The color palette is displayed, and separate colors can be selected so that the customer's theme can be defined.



Add/Change Customer Colors screen

In any case, the user can reset the colors to the default ones by clicking the **Restore Default Theme** button while the aforementioned section can be dismissed with the **Cancel Changes** button.

*Note: All the individual colors should be defined so that the **Save Color Palette** button to be enabled.*

1.6. Users & Roles Management

1.6.1. Roles and Permissions

The user permissions for any CYRACO platform action, for each type of user role, are defined following the reference matrix below:

Roles & Permissions Matrix	ROLE ADMIN	ROLE_CLIENT & Auditor	ROLE_USER & Auditor	ROLE_CLIENT without Auditor	ROLE_USER without Auditor
Dashboard	X	X	X	X	X
Configuration (ROLE_ADMIN)					
View Application Versions List	X				
Search Application Versions	X				
Add New App Version	X				
Edit Version Information	X				
Deactivate Application Version	X				
Configuration (ROLE_CLIENT)					
View Customer Information		X		X	
Edit Customer Information		X		X	
Add/Change Customer Logo		X		X	
Add/Change Customer Colors		X		X	
Users					
View Users List	X	X		X	
Search Users	X	X		X	
Add New User	X	X		X	
Edit User	X	X		X	
Edit User (Deactivation)	X	X		X	
Customers					
View Customers List	X				
Search Customers	X				
Add New Customer	X				
Edit Customer Information	X				
Manage AI Models	X				
Delete Customer	X				
Locations					
View Locations List	X	X		X	
Search Locations	X	X		X	
Add New Location	X	X		X	
Edit Location	X	X		X	
Manage Docs	X	X		X	
Delete Location	X	X		X	

Requirements					
View Templates List	X	X		X	
Search Templates	X	X		X	
Add New Template	X	X		X	
Export To .XLSX	X	X		X	
Edit Template - Edit Details	X	X		X	
Edit Template - Add Category	X	X		X	
Edit Template - Reorder Categories	X	X		X	
Edit Template - Delete Category	X	X		X	
Edit Template - Add Requirement	X	X		X	
Edit Template - Reorder Requirements	X	X		X	
Edit Template - Edit Requirement	X	X		X	
Edit Template - Delete Requirement	X	X		X	
View Requirement	X	X		X	
Delete Template	X	X		X	
Boxes					
View Boxes List	X				
Search Boxes	X				
View History & Actions	X				
View History & Actions - Send Error Log	X				
View History & Actions - Remove Box Videos	X				
View History & Actions - Re-Upload Existing Videos	X				
View History & Actions - Send Wi-Fi Configuration	X				
View History & Actions - Download Box Logs	X				
View History & Actions - Unlock Box	X				
Edit Box Information	X				
Delete Box	X				
Inspections					
View Inspections List	X	X	X		
Search Inspections	X	X	X		
Book New Inspection	X	X	X		
Edit Inspection Details	X	X			
Start Inspection	X	X	X		
Start Inspection - Evaluate Requirements	X	X	X		
Start Inspection - Itinerary Comments	X	X	X		

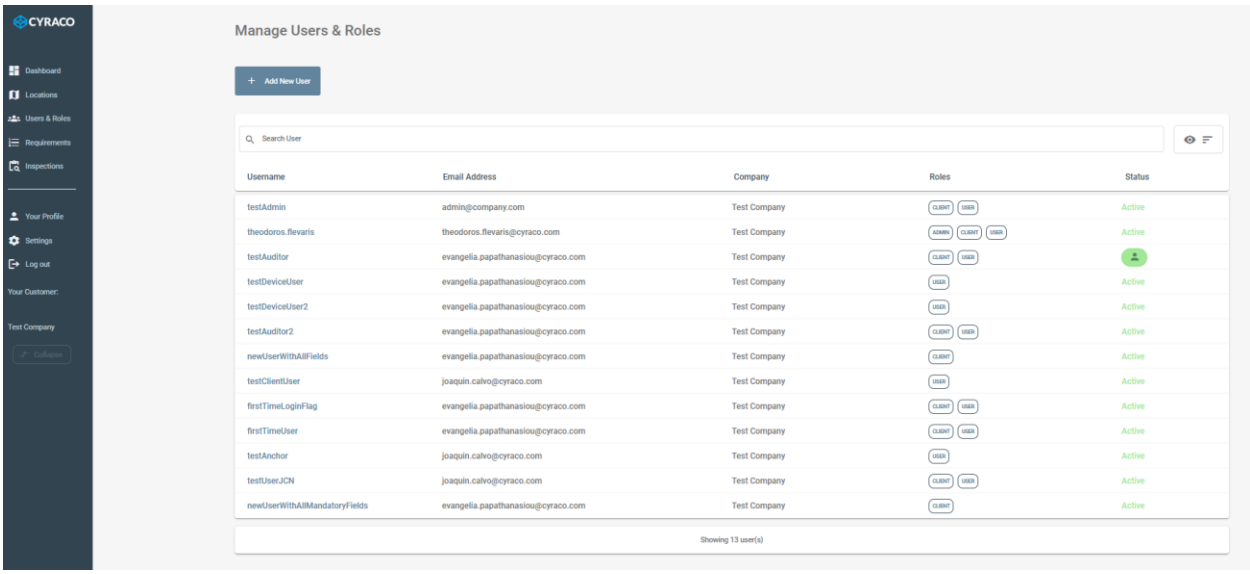
Start Inspection - Close Inspection	X	X	X		
Replay Inspection	X	X	X	X	X
View Inspection Details	X	X	X	X	X
View Inspection Details - Create PDF Report	X	X	X	X	X
View Inspection Details - Create Excel Report	X	X	X	X	X
Cancel Inspection	X	X			
Process Footage	X	X	X		
AI Vision					
View AI Models List	X				
Add AI Model	X				
Edit AI Model	X				
Edit AI Model - Deactivate Model	X				

1.6.2. Users List

Once the CLIENT user navigates to the **Users** menu, he is able to view a list with all the enrolled users as well as the **Add New User** option.

The list of users contains the following information for each user's record:

- Username
- Email Address
- Company
- Roles
- Status



Users List screen

Moreover, the users can be searched by typing any user detail (such as Full Name, Username etc) in the respective search bar which is located above the list.

Note: The logged-in user is marked with the  *icon in the list.*

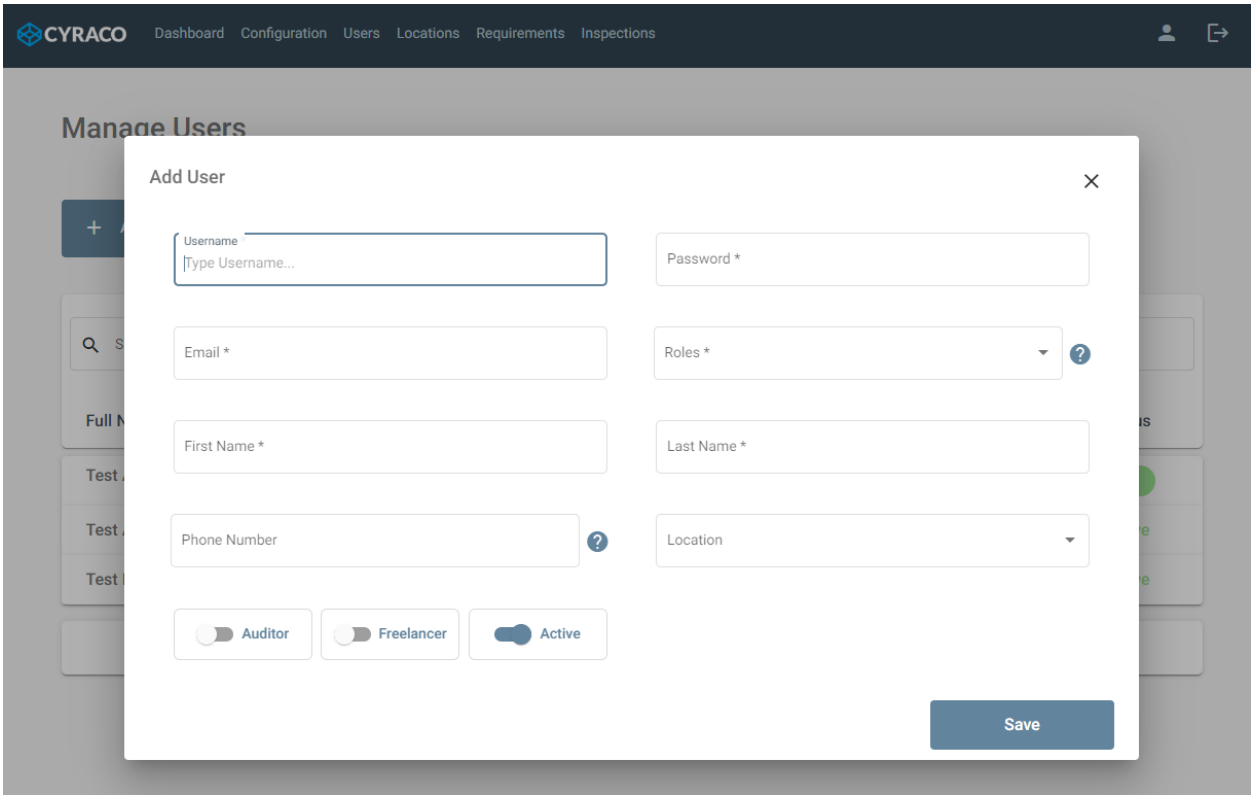
1.6.3. Add New User

By clicking the **Add New User** button, a pop-up window is presented, and the admin user has to provide the following details in order to create a new user:

- Username
- Password
- Email
- Roles: {Client[1], User[2]}
- First Name
- Last Name
- Phone Number
- Location – retrieved from the locations that admin user has already configured
- Auditor[3] – enable or not
- Freelancer – enable or not
- Active – the status of the user

*Prerequisites: To add new users (or to change existing ones), at least one location must exist. The user can add a location via the **Locations** menu (see Add New Location section).*

[1] Role – Client: is eligible to manage the users and the inspections and to set up the customer's details, the locations, and the requirements
[2] Role – User: is eligible to manage the inspections
[3] Auditor: is able to plan and execute the audits, as well as to manage the key audit properties (requirements, anchors, QR codes, etc)

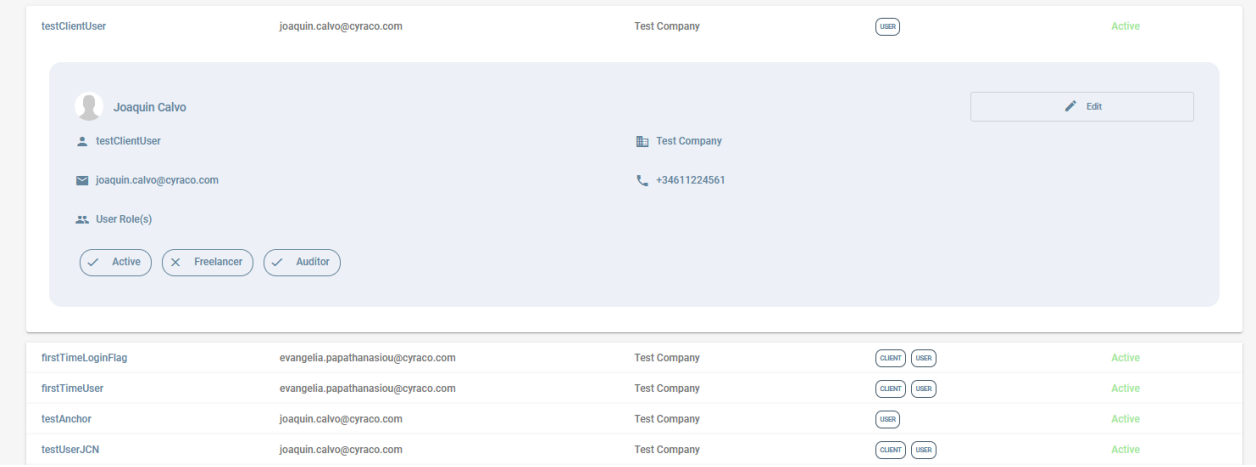


Create New User screen

*Note: The user can cancel the user's creation by clicking on the **X** icon on the top right of the window.*

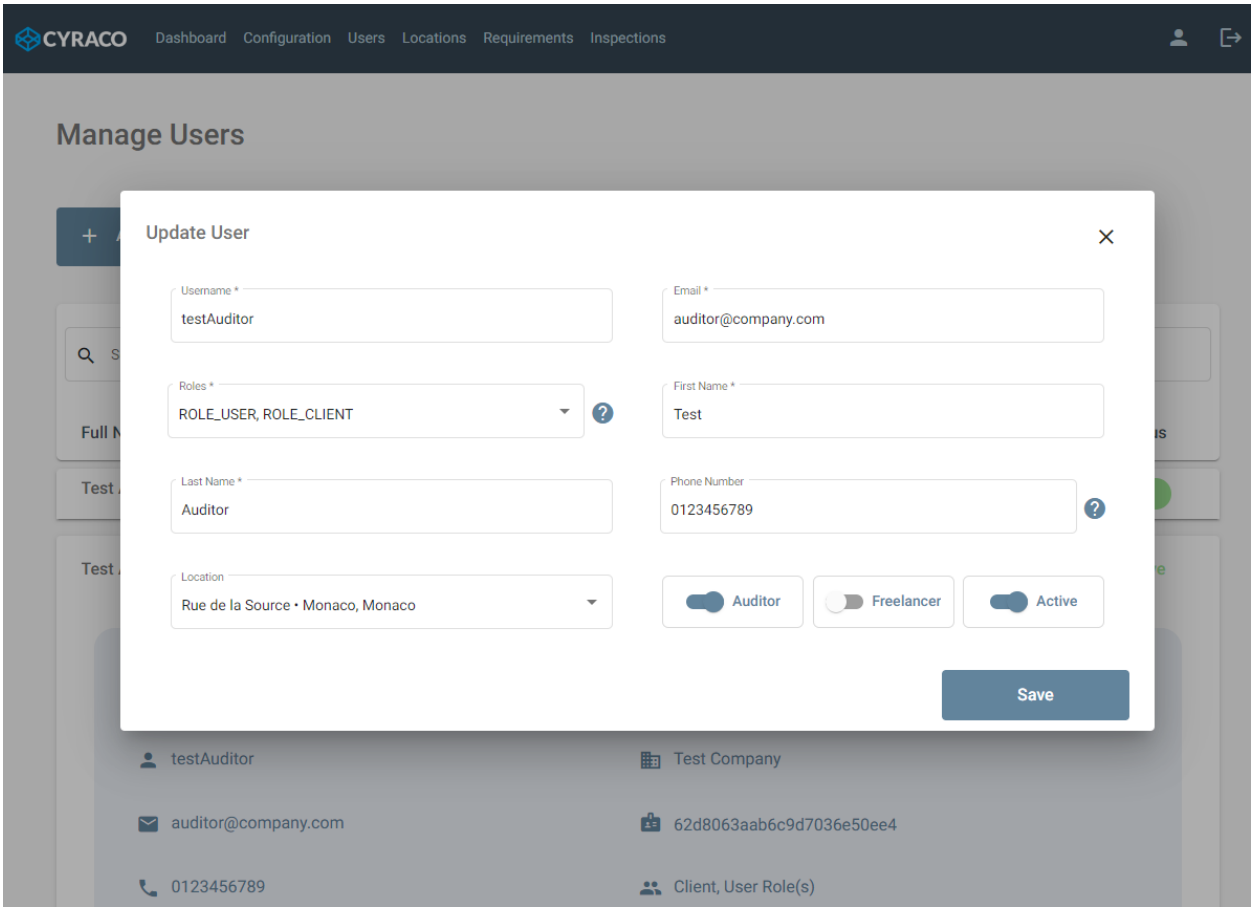
1.6.4. Edit Existing User

The user is also able to edit an existing user by clicking the respective row of the list and an expanded section is displayed as below:



User's Details screen

Once the user clicks the **Edit** button, a pop-up window is displayed, and he is able to modify any of the displayed fields such as Username, Email Address etc. Since the user taps on the **Save** button, the changes are saved and the user's details are updated.



Edit Existing User screen

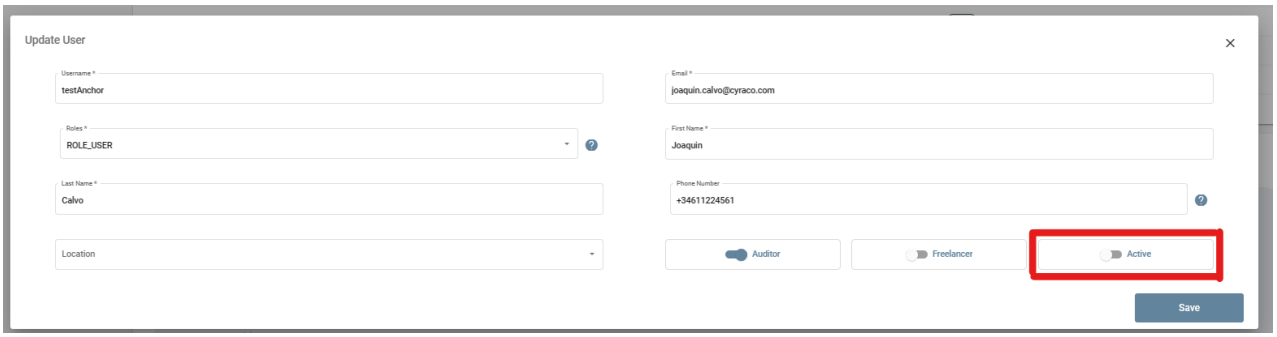
Note 1: The Password field is not displayed since it must not be modified.

*Note 2: The user can discard any modifications by clicking on the **X** icon on the top right of the window.*

Note 2: The logged-in user is not able to edit his own's user details.

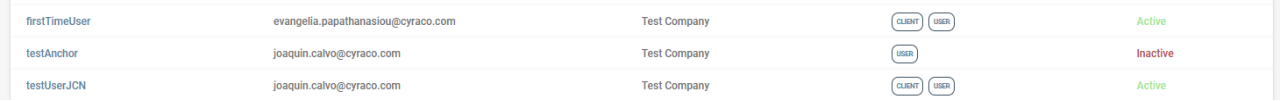
1.6.4.1. Disable User

The admin user is able to edit an existing user and select to disable him by unselecting on the respective checkbox, as per the below screenshot.



Disable User screen

After the entity's saving, the user's status is set to *Inactive* and the user cannot log in to the CYRACO system.



Inactive User's Details screen

Note: The users' deletions are always logical and not physical so that any important audit information would not be lost. Consequently, the user is considered temporarily inactive, and its status can be set to Active again.

1.7. Locations

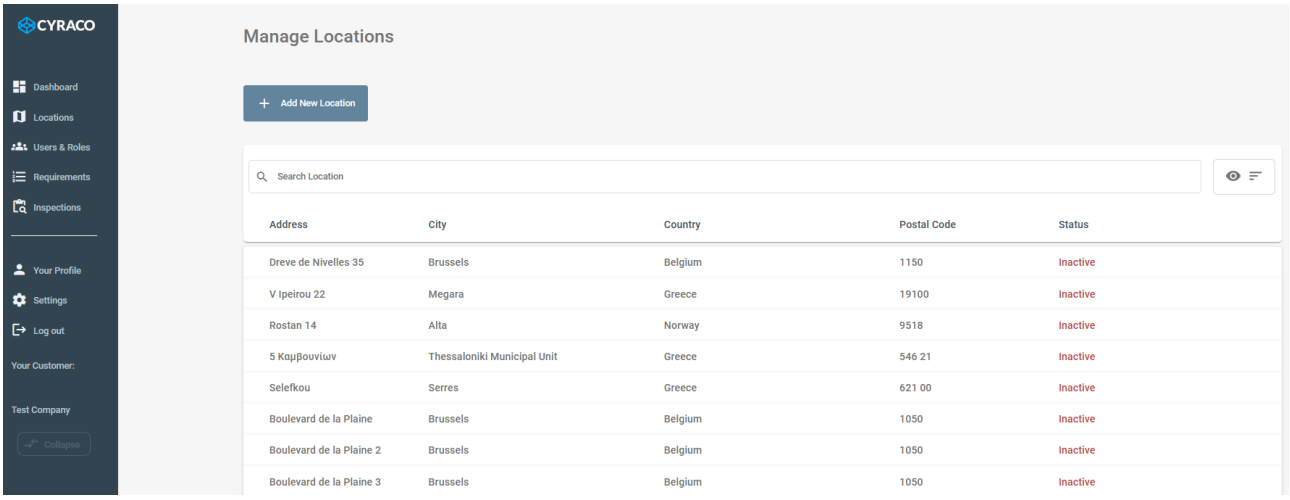
The Locations are assigned both to Users and to Inspections. When the CLIENT user creates or edits a user, a location can optionally be defined in each user record which indicates the location of the user where he works. On the other hand, the location is a mandatory property for the inspection's creation since it indicates the accurate location where the audit takes place.

Once the admin user navigates to the **Locations** menu, he can view a list with all the configured locations as well as the **Add New Location** option.

1.7.1. Location List

The list of locations is retrieved per customer and contains the following information for each entity:

- Address
- City
- Country
- Postal Code
- Status



Locations List screen

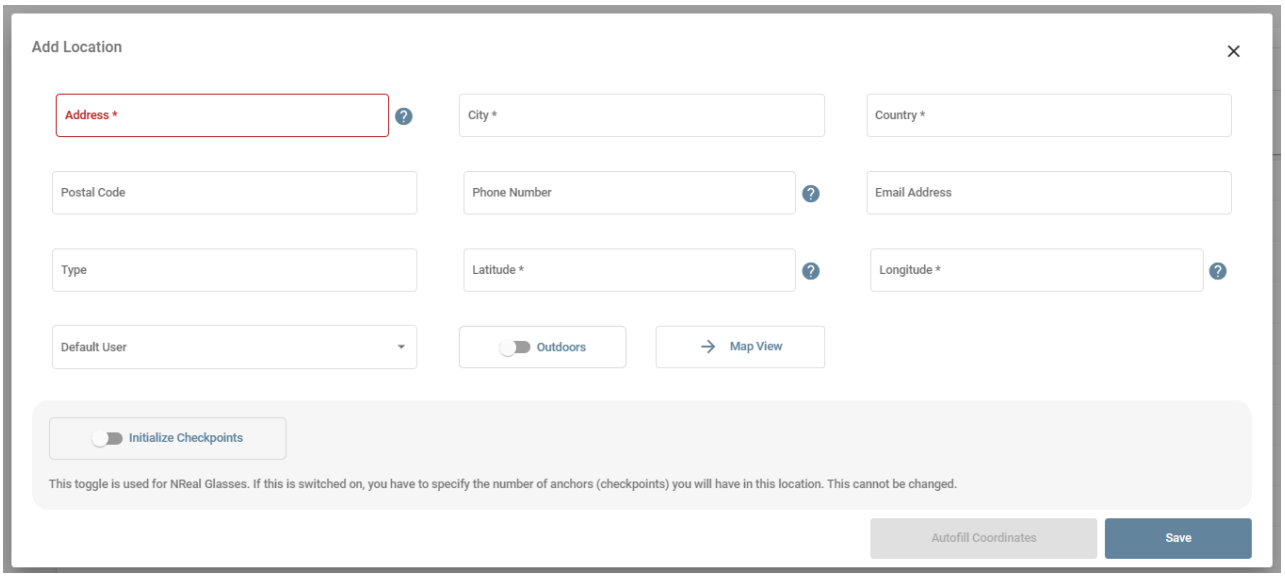
Moreover, the locations can be searched by typing any location's detail (such as Address, City, etc) in the respective search bar which is located above the list.

1.7.2. Add New Location

By clicking the **Add New Location** button, a pop-up window is presented, and the CLIENT user has the option to provide the following details in order to create a new location:

- Address
- City
- Country
- Postal Code
- Phone Number
- Email Address
- Type
- Latitude
- Longitude
- Default User
- Outdoors/Indoors

Additionally, the CLIENT user is able to already initialize itinerary checkpoints that will be later assigned by the auditor to specific positions in the corresponding location.



Create New Location screen

Once the user starts typing the **Address** value, a list of suggested places is displayed. In case the user selects a recommended place, then the full address (Country, Postal Code, Latitude, Longitude) is fetching and the respective fields are filled accordingly.

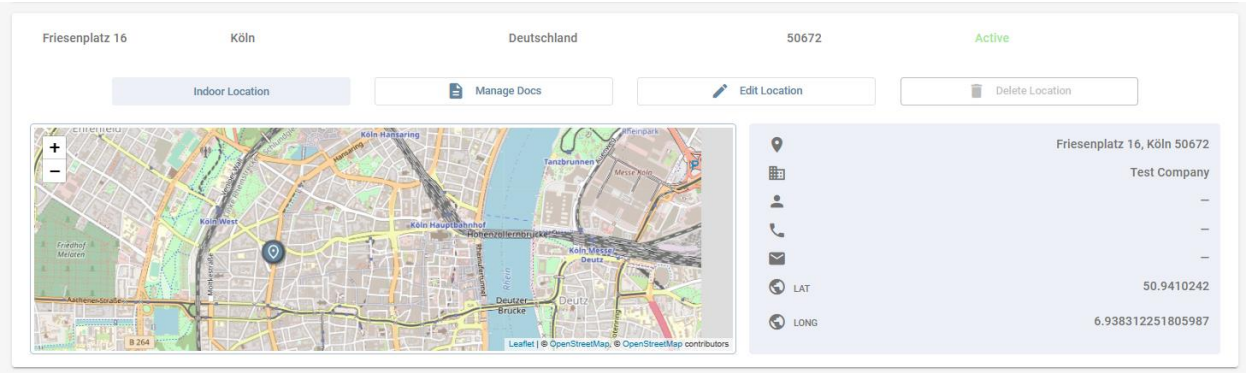
The **Map View** button helps the user to specify the accurate location by selecting it on the map and all fields are going to be auto-filled.

The **Autofill Fields** button is getting enabled when the user provides the **Address** (Street Name and Number) as well as the **City**. Once clicking on the button, the full address (Country, Postal Code, Latitude, Longitude) is fetching and the respective fields are filled accordingly.

*Note: The user can cancel the location's creation by clicking on the **X** icon on the top right of the window.*

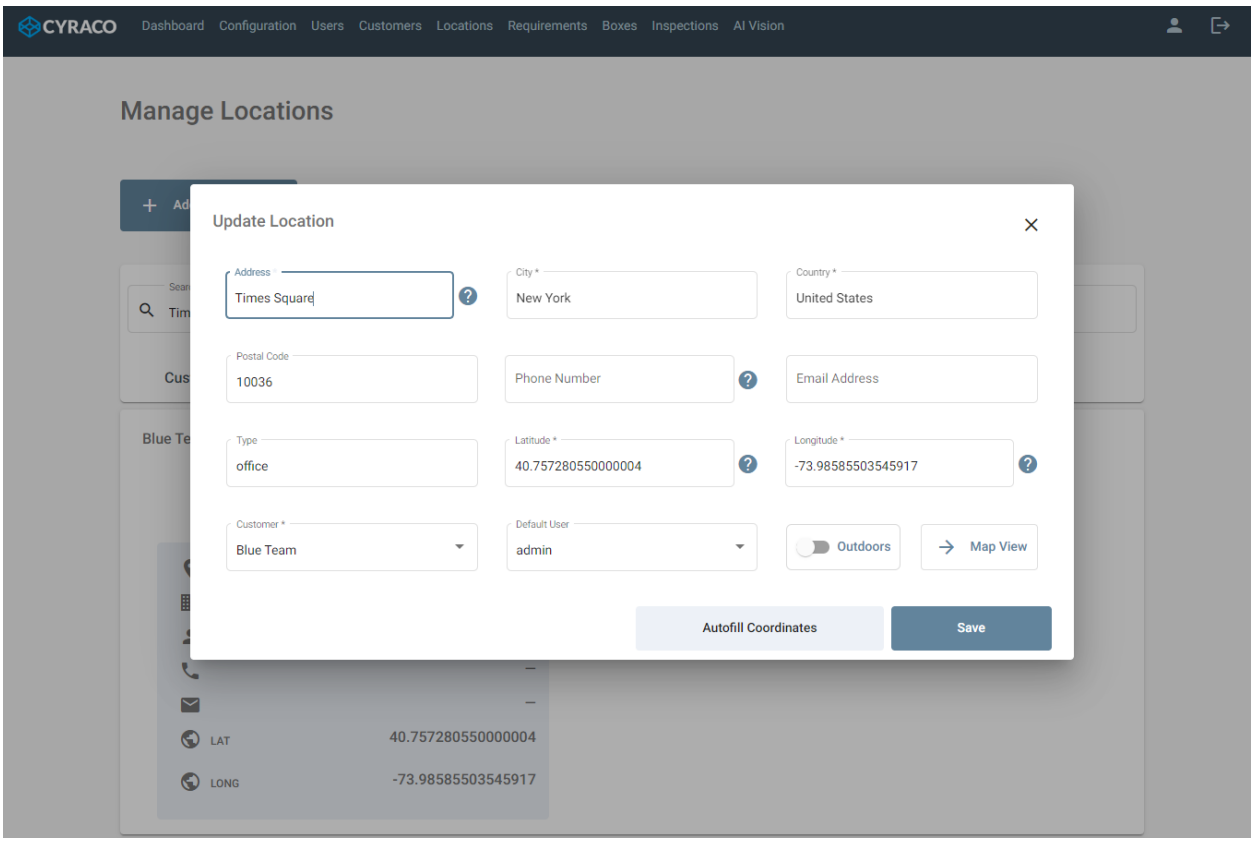
1.7.3. Edit Existing Location

The user is also able to edit an existing location by clicking the respective row of the list and an expanded section is displayed as below:



Location's Details screen

Once the user clicks the **Edit Location** button, a pop-up window is displayed, and he is able to modify any of the displayed fields such as Address, City etc. Since the user taps on the **Save** button, the changes are saved and the location's details are updated.

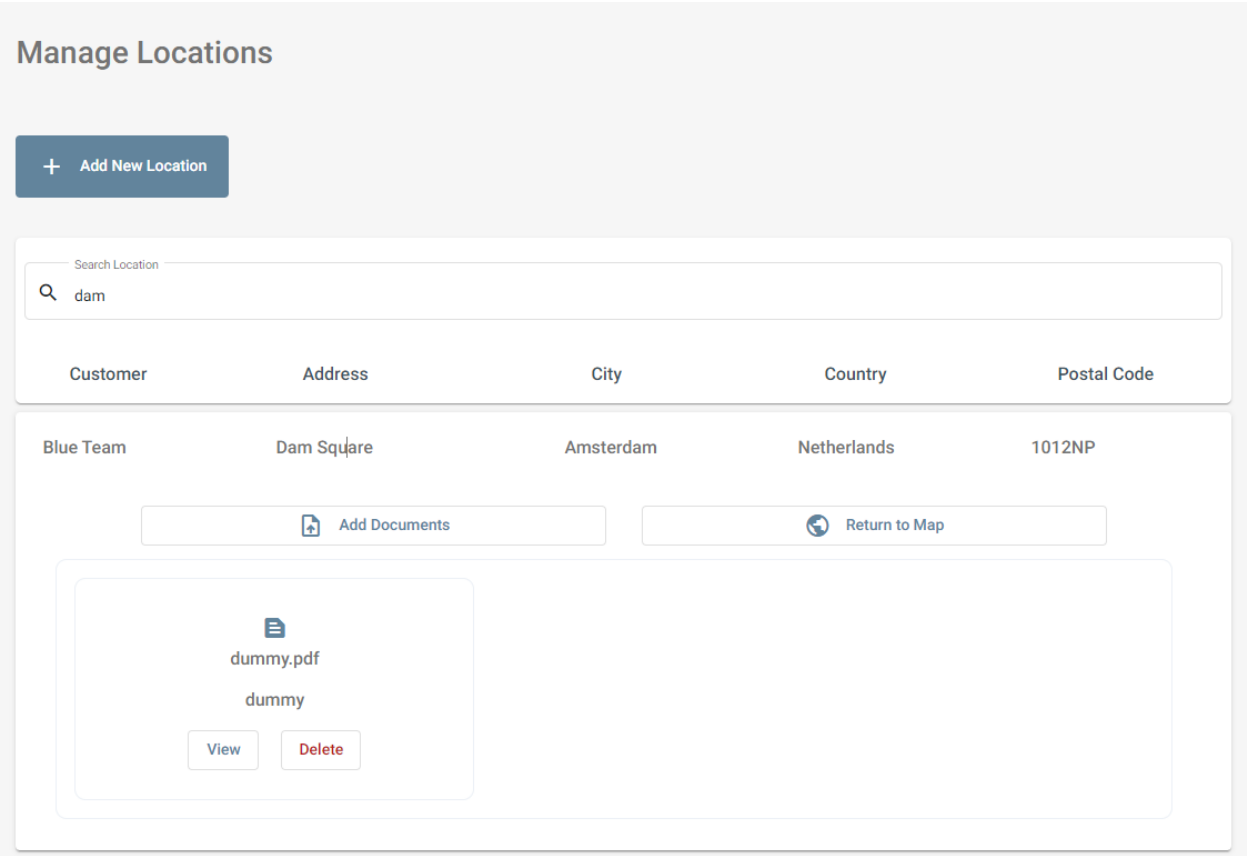


Edit Existing Location screen

*Note: The user can discard any modifications by clicking on the **X** icon on the top right of the window.*

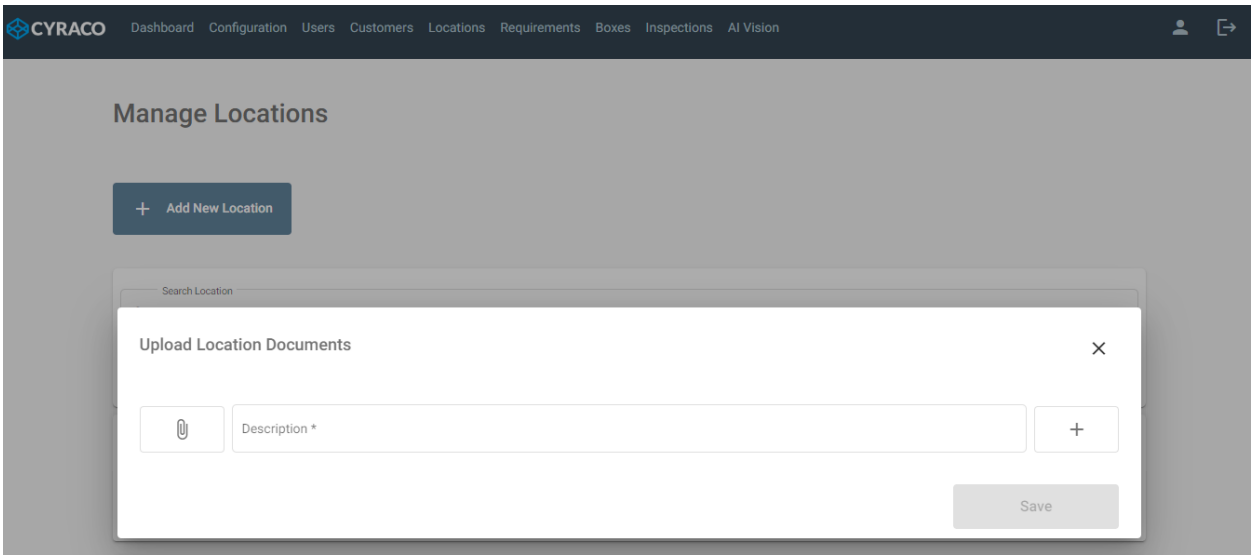
1.7.4. Manage Documents

In each location, the user is able to manage PDF files by clicking the **Manage Docs** button and the below screen is displayed, in which he can view the existing uploaded files or add new ones, as well as he is able to tap on the **Return to Map** button in order to return in the location's details screen.



Manage Documents screen

Once clicking on the **Add Documents** button, the following pop-up window is presented, and the user has to select a file and provide a description in order to upload them.

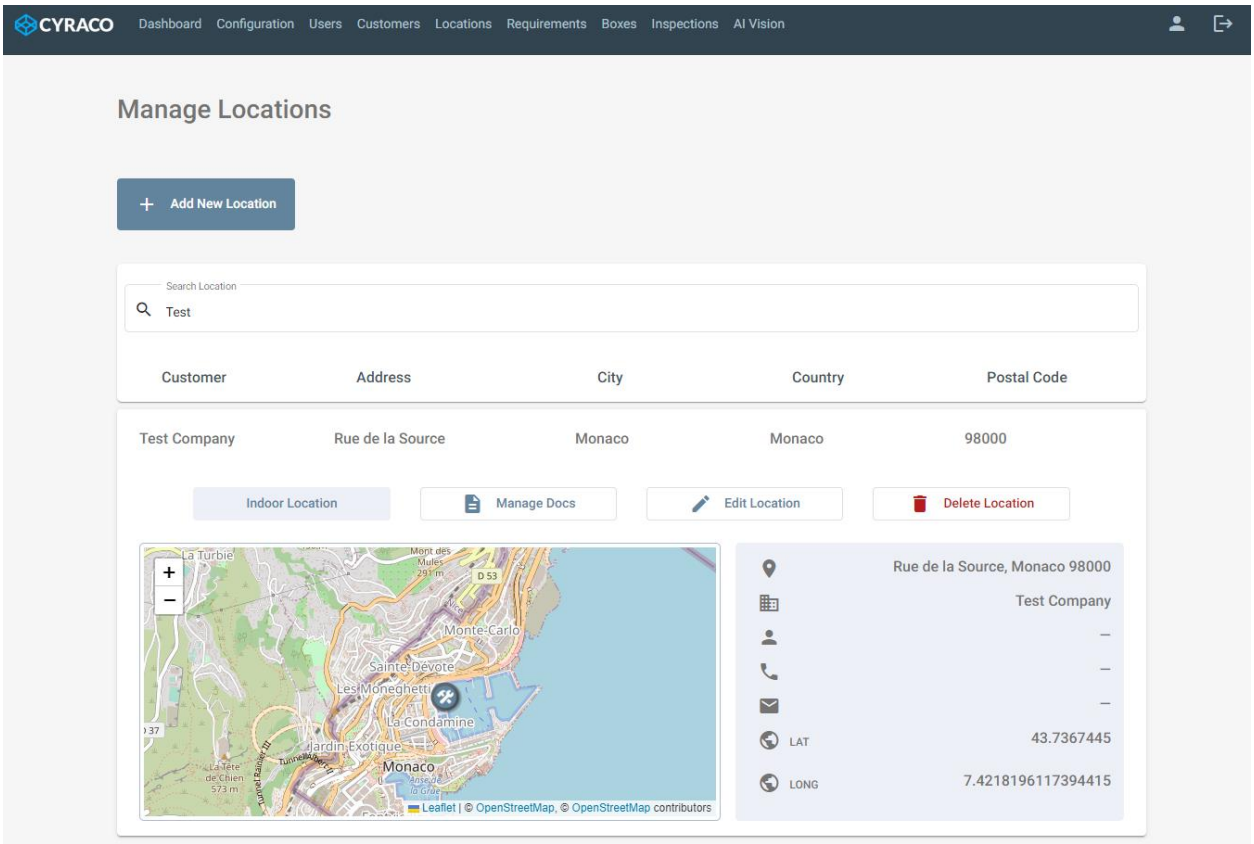


Upload Location Documents screen

*Note: The user can discard the uploading of the files by clicking on the **X** icon on the top right of the window.*

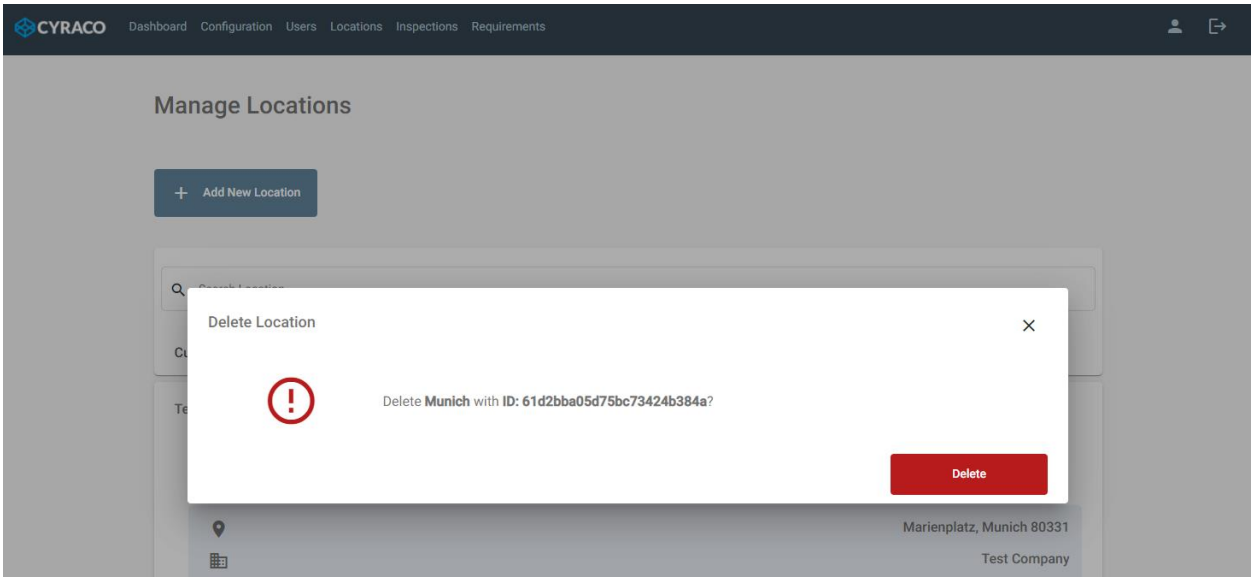
1.7.5. Delete Existing Location

The user is also able to delete an existing location by clicking the respective row of the list and an expanded section is displayed as below:



Location's Details screen

Once the user clicks the **Delete Location** button, a pop-up window is displayed which verifies if the user wants to proceed with the location's permanent deletion. Since the user taps on the **Delete** button, the location is deleted and is not available anymore.



Delete Location screen

*Note: The user can discard the location's deletion by clicking on the **X** icon on the top right of the window.*

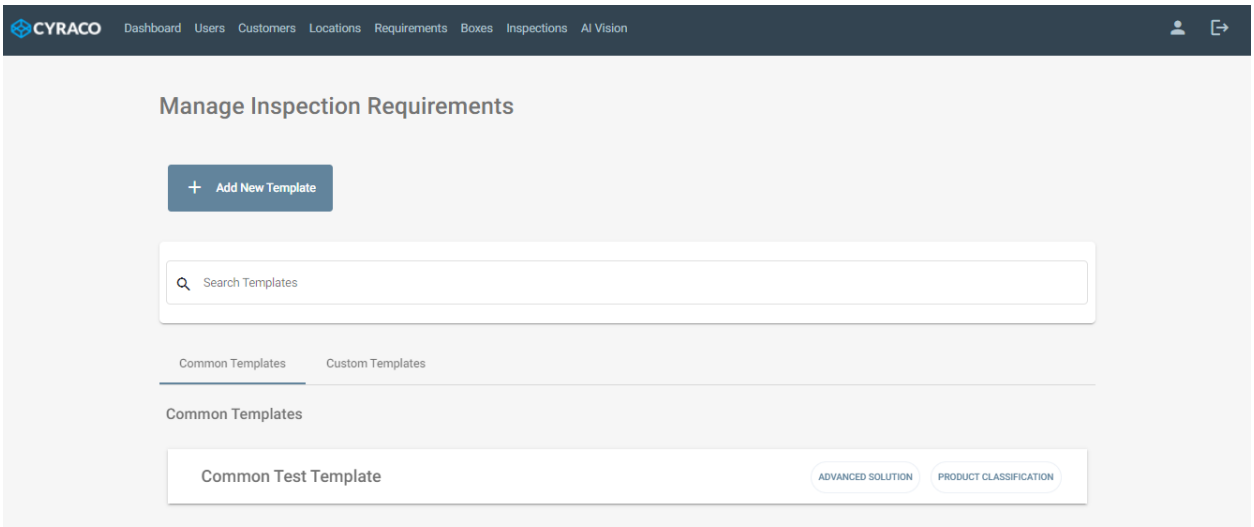
1.8. Requirements

Once the CLIENT user navigates to the **Requirements** menu, he is able to view a list with all the common and customized templates under the respective tabs, as well as the **Search** and the **Add New Template** options.

Each inspection should have an assigned template so that the audit can be performed. The templates are composed of the categories which include the requirements. The requirements are all the necessary tasks that should be performed during an audit.

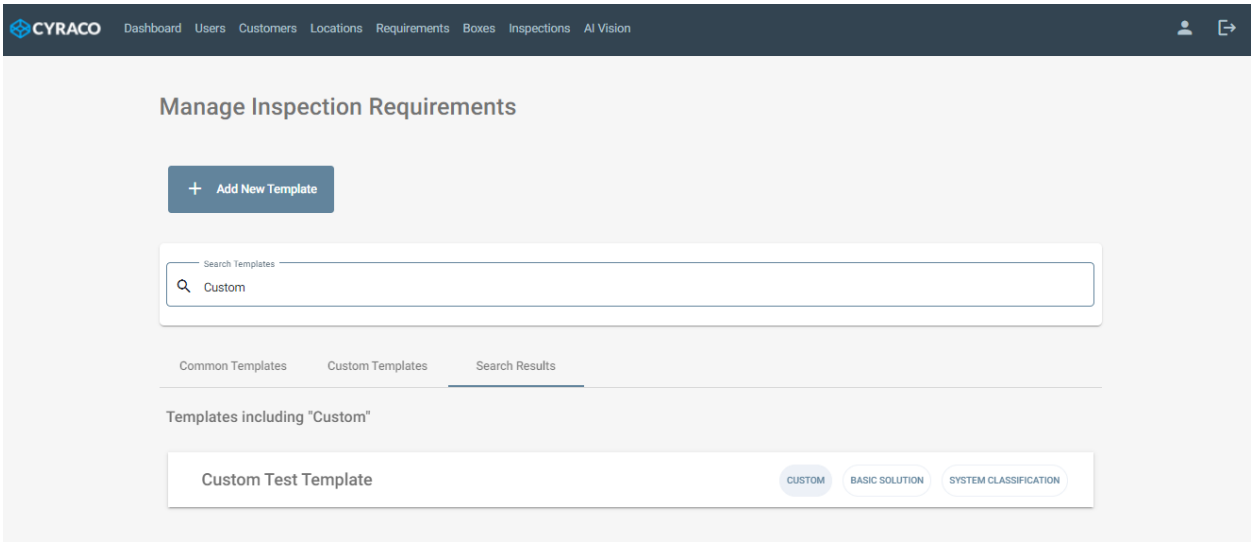
1.8.1. Templates List

Two tabs are presented in which the lists of templates (common/custom) are retrieved per customer.



Templates Lists screen

The user is also able to search a desired template by typing any value on the **Search** bar, the retrieved templates is displayed under the **Search Results** tab, as per the following screenshot.

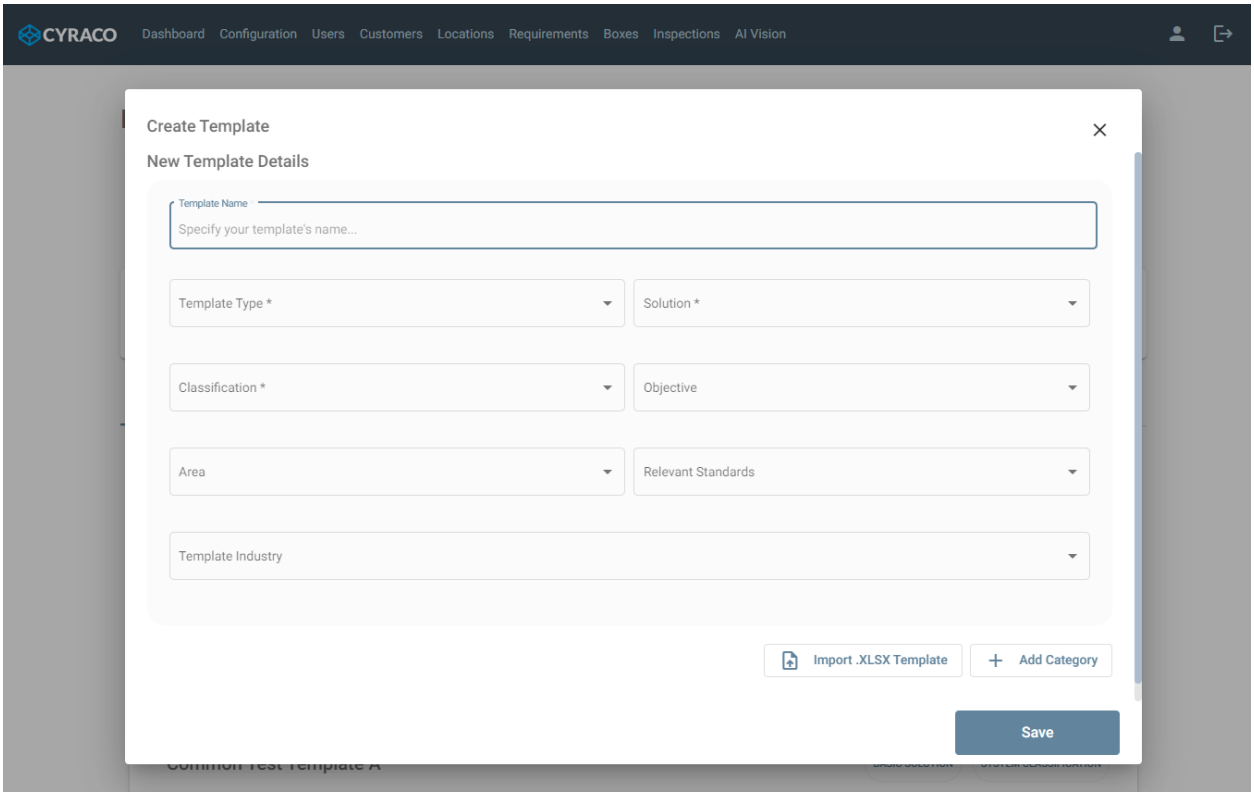


Search Tab screen

1.8.2. Add New Template

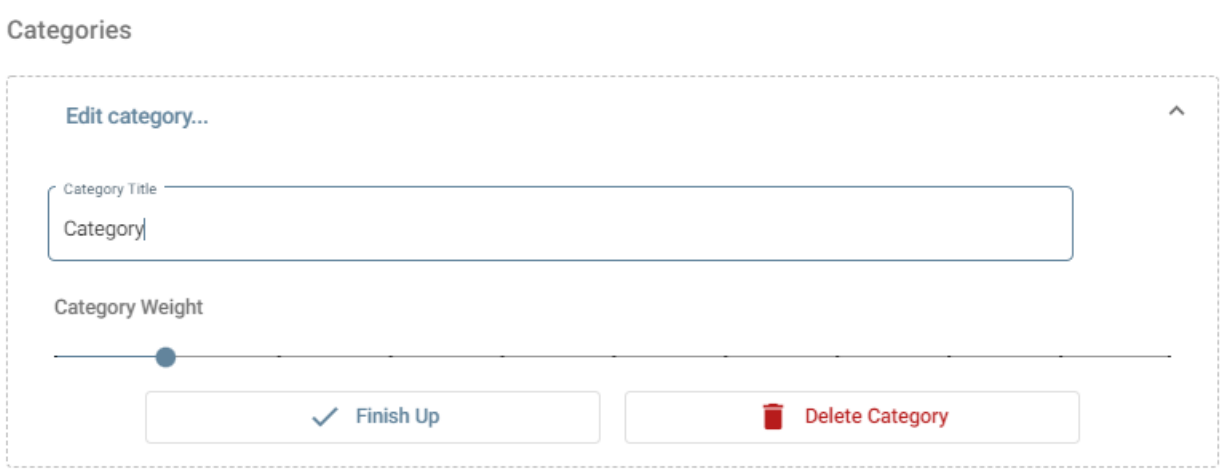
By clicking the **Add New Template** button, a pop-up window is presented, and the CLIENT user has to provide the following details in order to create a new template:

- Template Name
- Template Type: {Custom} (preselected value)
- Solution: {Basic Solution, Advanced Solution}
- Classification: {System Template, Process Template, Product Template}
- Objective: {Internal Use Template, Supplier Template, Certificate Template}
- Area: {Information Technology (IT), Finance, Production, Quality Management, Sales, etc}
- Relevant Standards: {ISO 27000, ISO 9000, IATF 16949}
- Template Industry: {Automotive Industry, Food Industry, Textile Industry, Pharmaceutical Industry, Machinery Industry, Other}



Create New Template screen

By default, the templates are created without categories, but the user can define the template's categories (if needed) by clicking the **Add Category** button. A new section is displayed in which the **Category Title** and the **Category Weight** should be specified. In any case, the user can delete the category using the respective button. The category weight, as well as the requirement weight further below, are used to potentially extract a global inspection score with weighted scores from each requirement and category.



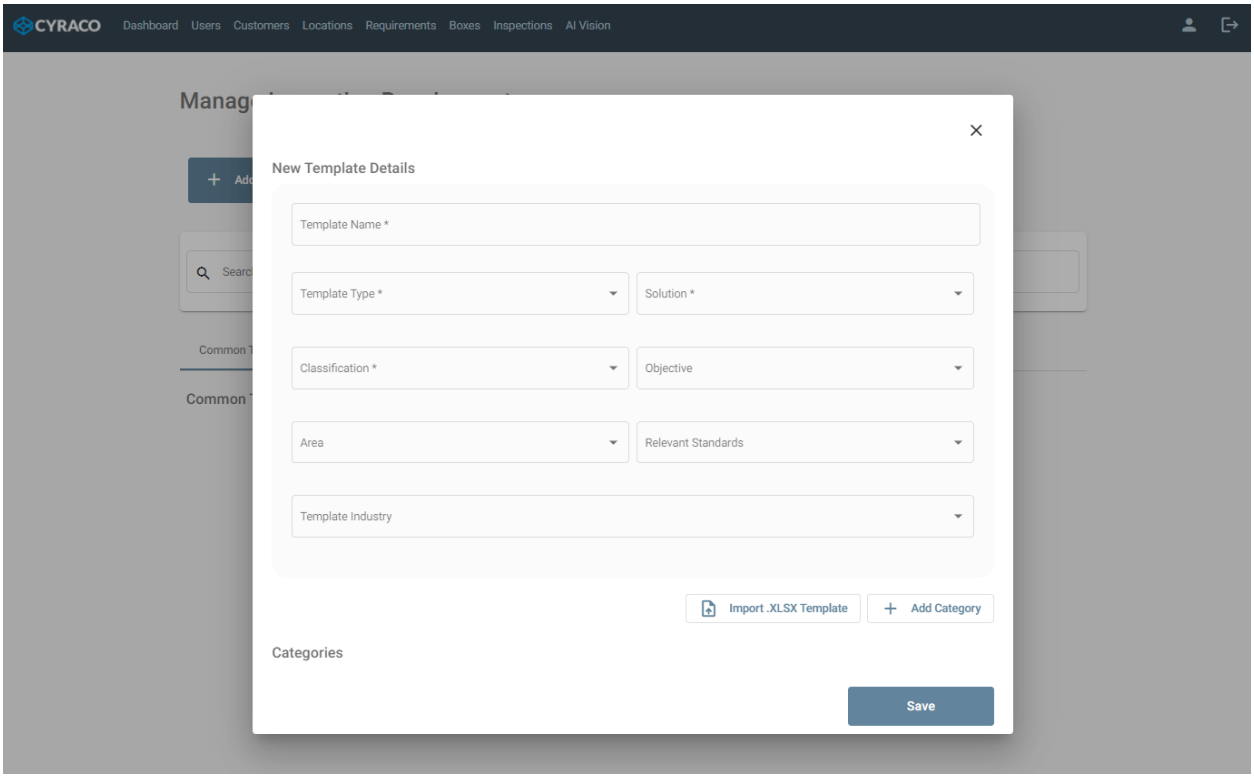
Edit Category section

The user is also able to add multiple categories at once by using the **Add Category** button.

*Note: The user can cancel the template's creation by clicking on the **X** icon on the top right of the window.*

1.8.3. Import New Template

Instead of creating a new template from scratch, the user can select and upload a file (xlsx format) by clicking the **Import .XLSX Template** button so that the template is created based on the file properties. In this case, the user is able to upload the categories among the respective requirements, while the properties of each template, such as Name, Type, Solution, etc, should be defined from scratch.



Create New Template screen

1.8.4. Allowed Template XLSX File Format

The XLSX file should be created according to the below file format in order to be uploaded successfully.

It must contain the following columns and the allowed values:

Column	Mandatory (to be defined)	Allowed Values	Comments
Requirement Category	Yes	Free text	
Requirement Name	Yes	Free text	

Requirement Criteria	No	Free text	The field can also be empty
Requirement Type	Yes	range single free dropdown	○ Range – displaying a rating bar ○ Single – displaying a checkbox of True/False value ○ Free – displaying a free text field ○ Dropdown – displayed list of custom options, while the options should be written separated with a comma
Requirement Importance	Yes	integer number in [1, 10]	
Evidence as attachment	Yes	TRUE/FALSE	
Inspection Coverage	Yes	TRUE/FALSE	
Allow comments	Yes	TRUE/FALSE	
Score	Yes	TRUE	
Custom fields	Yes	TRUE/FALSE	

The columns and the allowed values should be defined like the screenshot below.

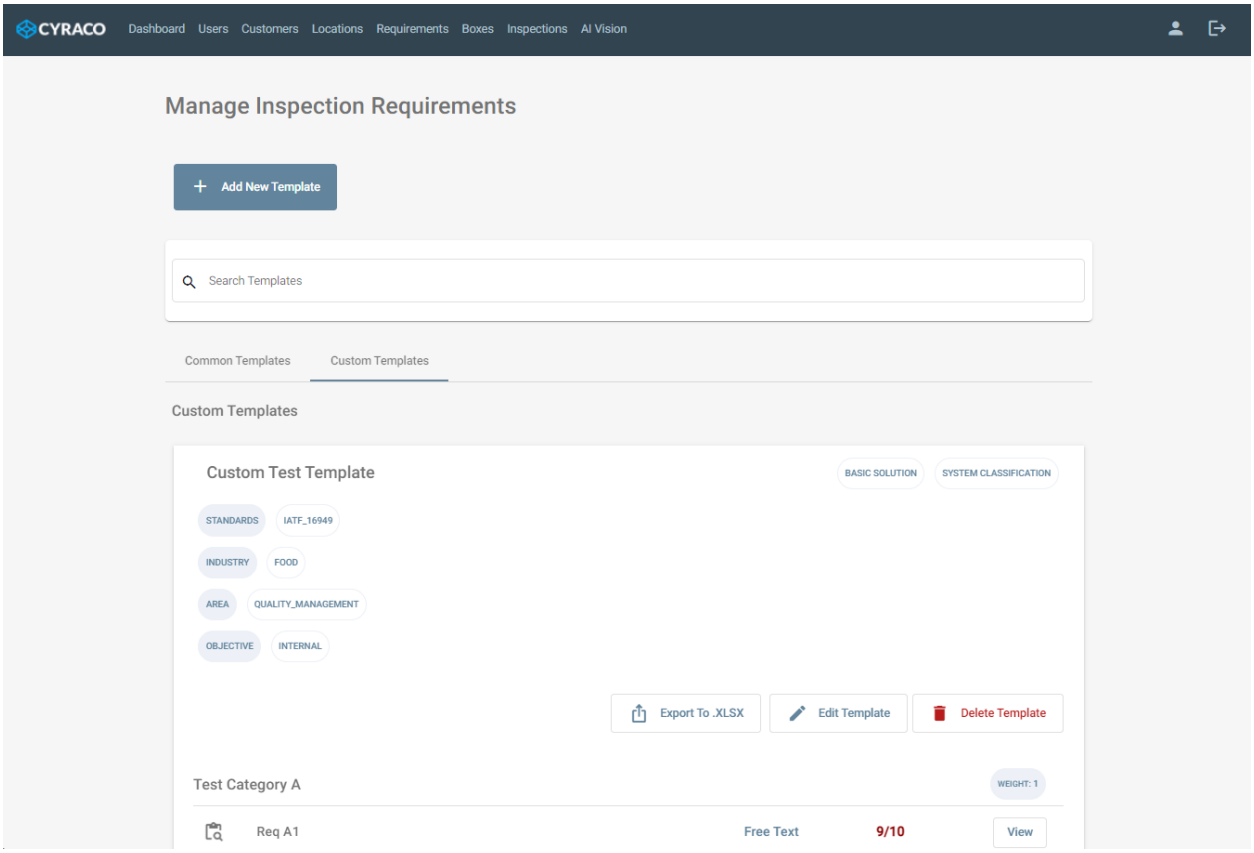
	A	B	C	D	E	F	G	H	I	J
1	Requirement Category	Requirement Name	Requirement Criteria	Requirement Type	Requirement Importance	Evidence as attachment	Inspection Coverage	Allow comments	Score	Custom fields
2	Test Category A	Test Requirement A1	Test Criterion A1	range	9	TRUE	FALSE	TRUE	TRUE	FALSE
3	Test Category A	Test Requirement A2	Test Criterion A2	free	4	TRUE	TRUE	TRUE	TRUE	TRUE
4	Test Category B	Test Requirement B1	Test Criterion B1	single	8	TRUE	FALSE	TRUE	TRUE	FALSE
5	Test Category B	Test Requirement B2		dropdown, Option 1, Option 2, Option 3	4	TRUE	FALSE	TRUE	TRUE	FALSE

File Format Example

Also, an example of the allowed file can be found here. OBJ

1.8.5. Edit Existing Template

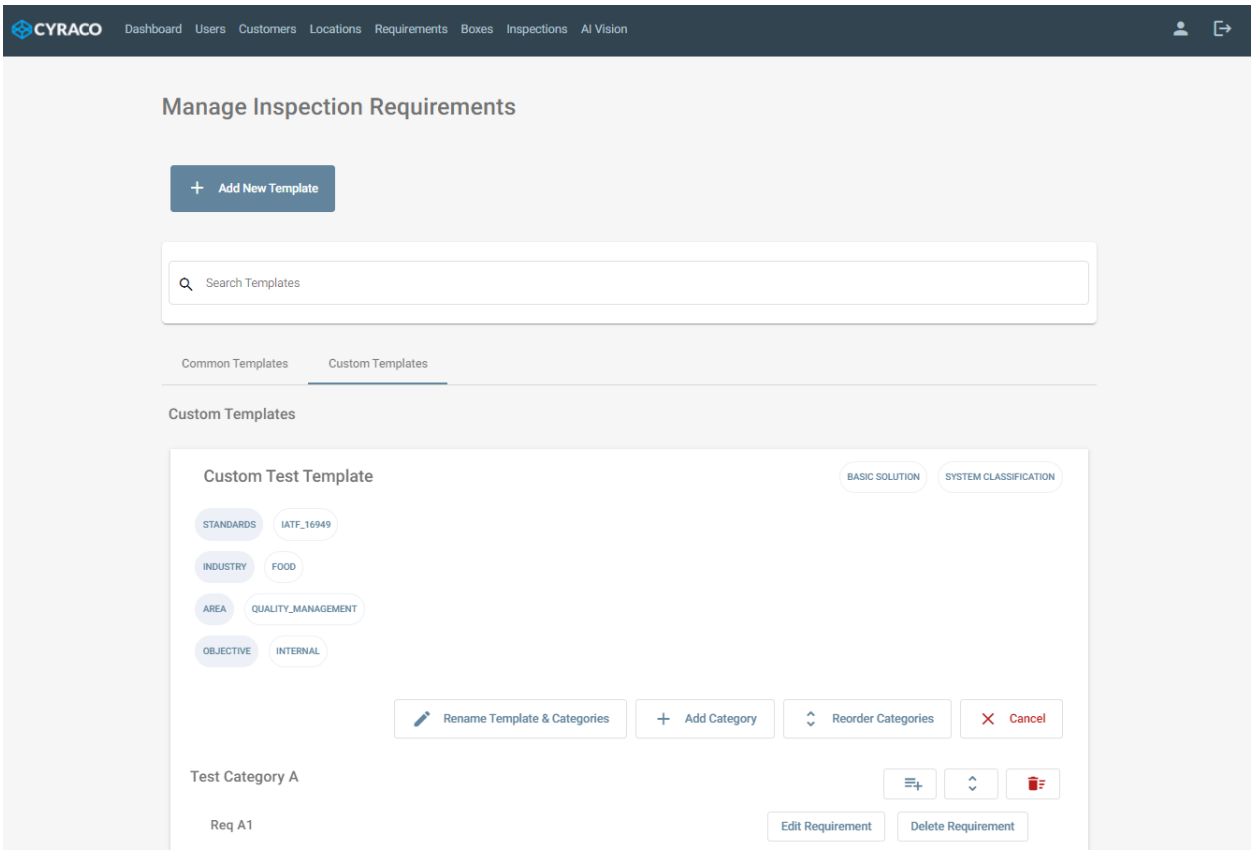
The user can edit an existing custom template by clicking the respective row of the list and an expanded section is displayed as below:



Template's Details screen

Once the user clicks the **Edit Template** button, the available actions are displayed. In the Edit Mode, the user can perform the following actions:

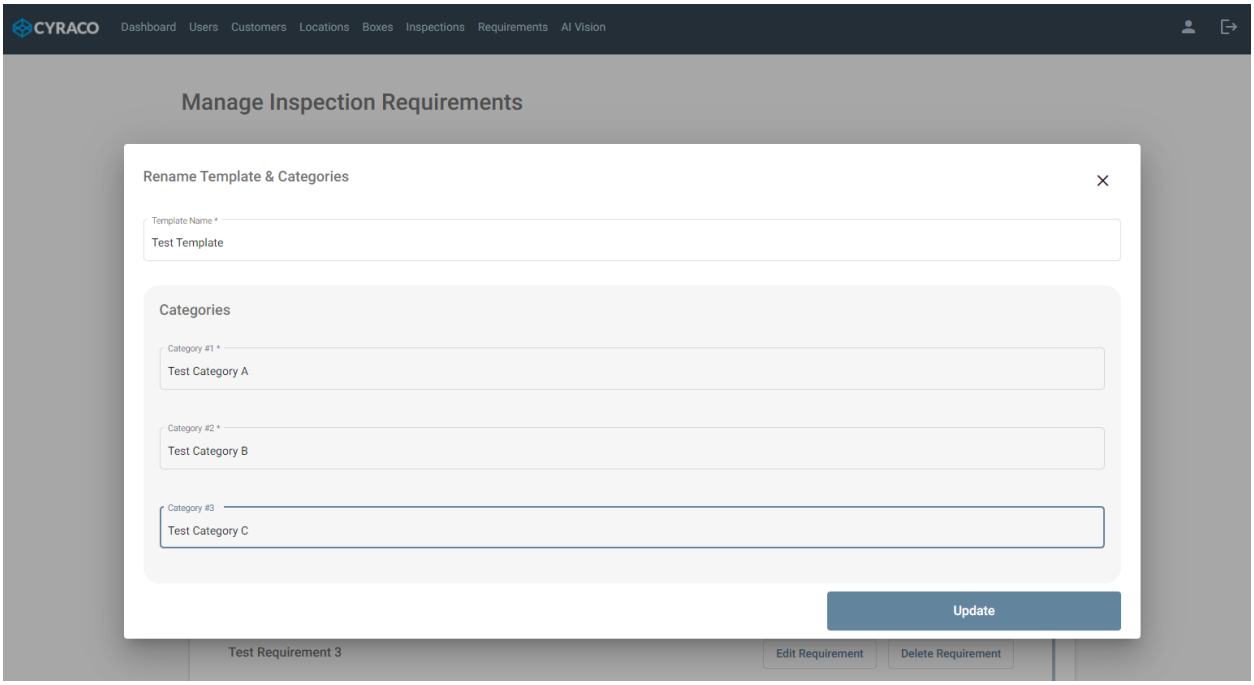
- Rename Template & Categories
- Add Category
- Reorder Categories
- Delete Category
- Add Requirement
- Edit Requirement
- Delete Requirement
- Reorder Requirements



Template's Edit Mode screen

1.8.5.1. Rename Template & Categories

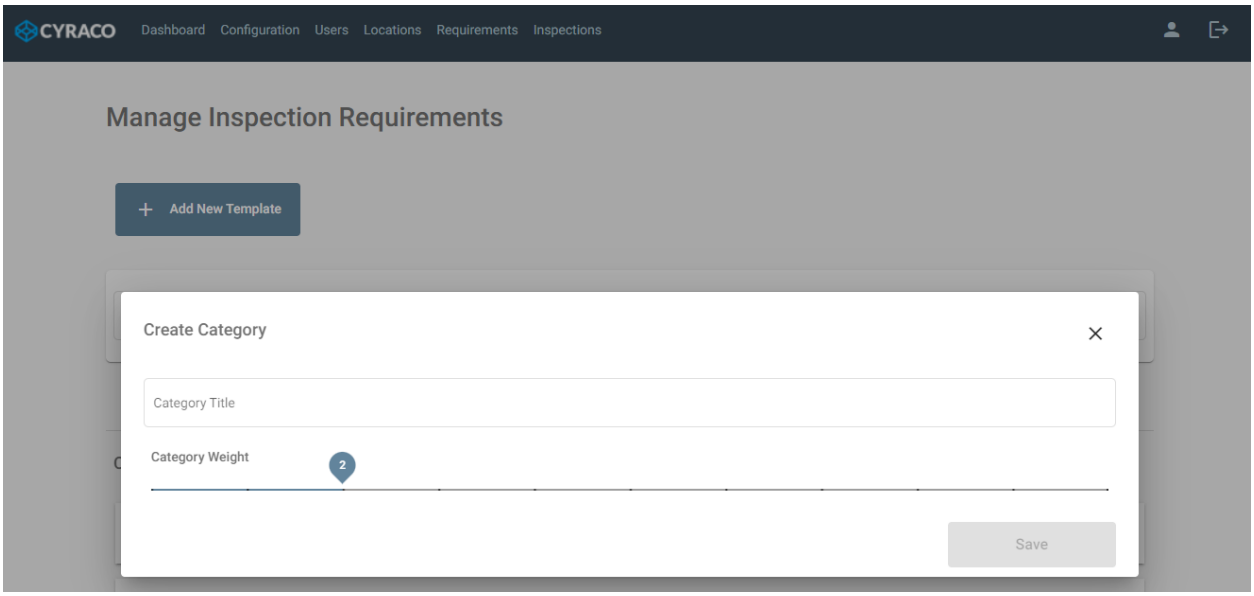
The user is able to rename the template's name as well as the categories' titles by tapping on the respective button and editing in the **Template Name** and the **Category** fields.



Rename Template & Categories screen

1.8.5.2. Add Category

The user can add more template's categories by tapping on the respective button and filling in the **Category Title** and the **Category Weight** fields.

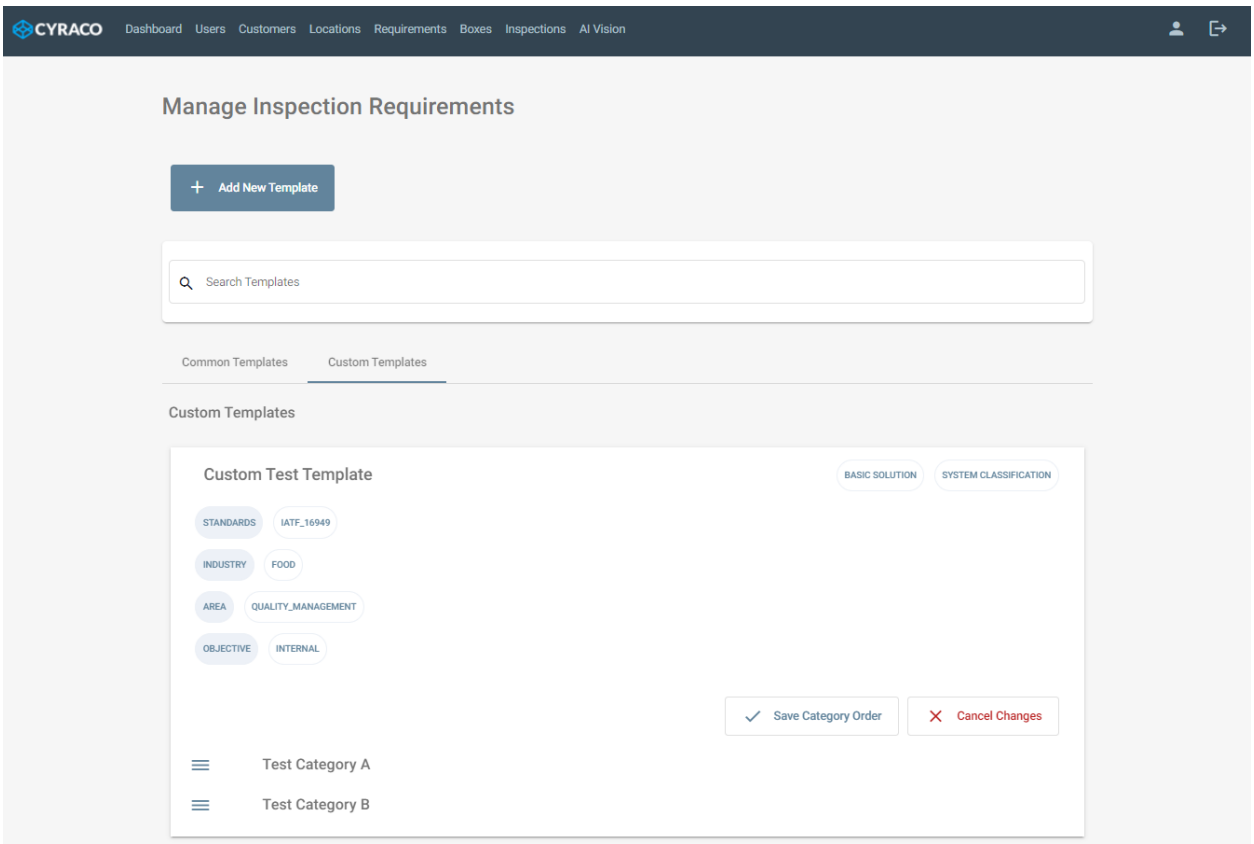


Add New Category screen

*Note: The user can cancel the category's creation by clicking on the **X** icon on the top right of the window.*

1.8.5.3. Reorder Categories

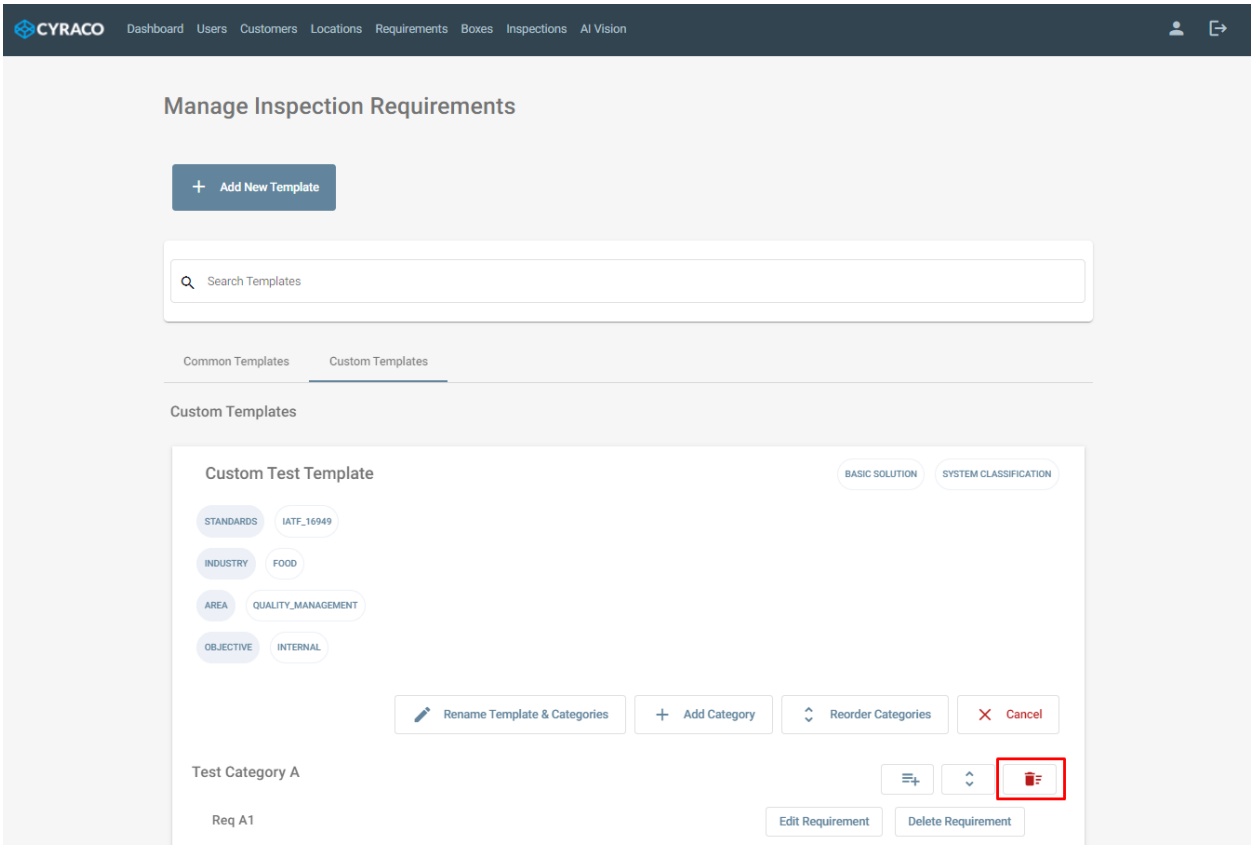
By tapping on the **Reorder Categories** button, the user can drag and drop the displayed categories in order to change their order and then save them.



Reorder Categories screen

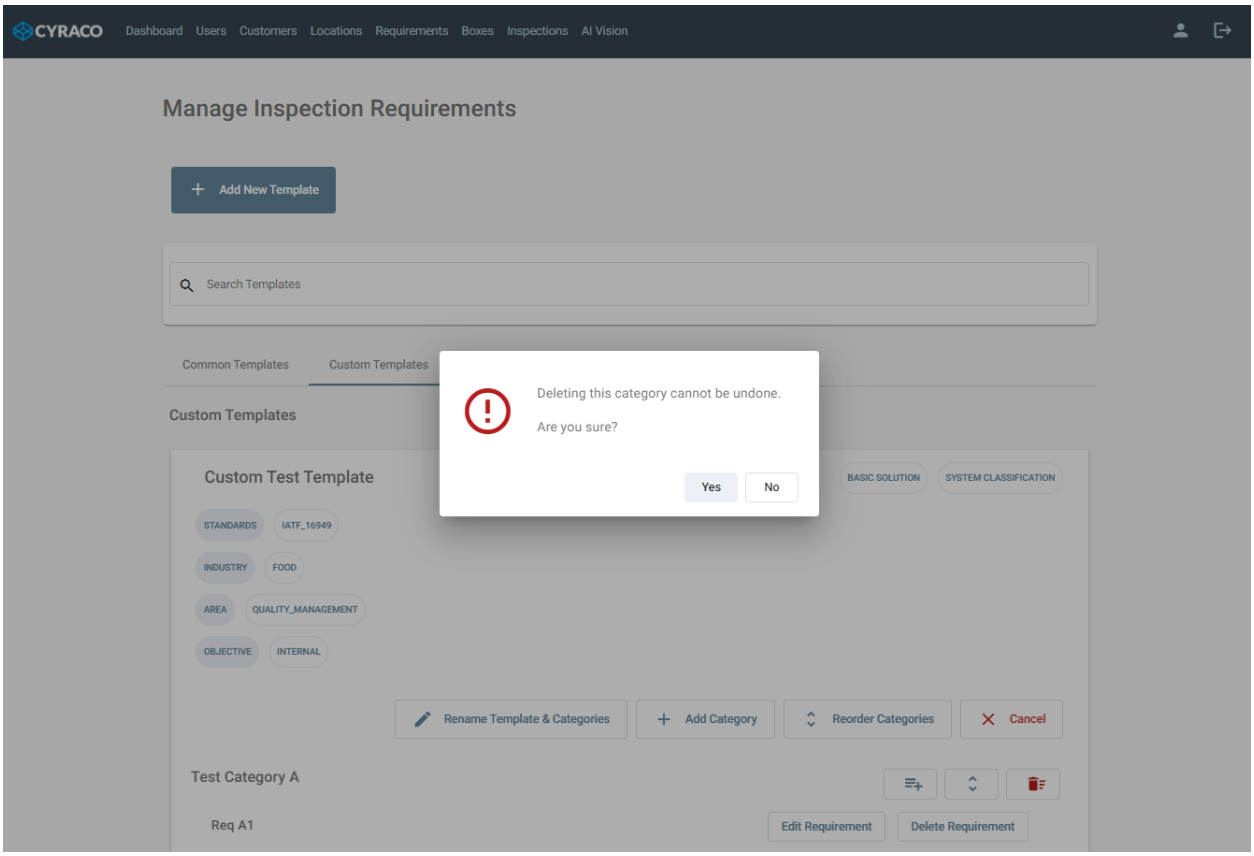
1.8.5.4. Delete Category

A category can also be deleted permanently by clicking the **Delete Category** button.



Template's Edit Mode screen

Once the **Delete Category** button is clicked, the below pop-up window is displayed in order for the user to confirm the category's deletion. Since the user taps on the **Delete** button, the category is not available anymore.



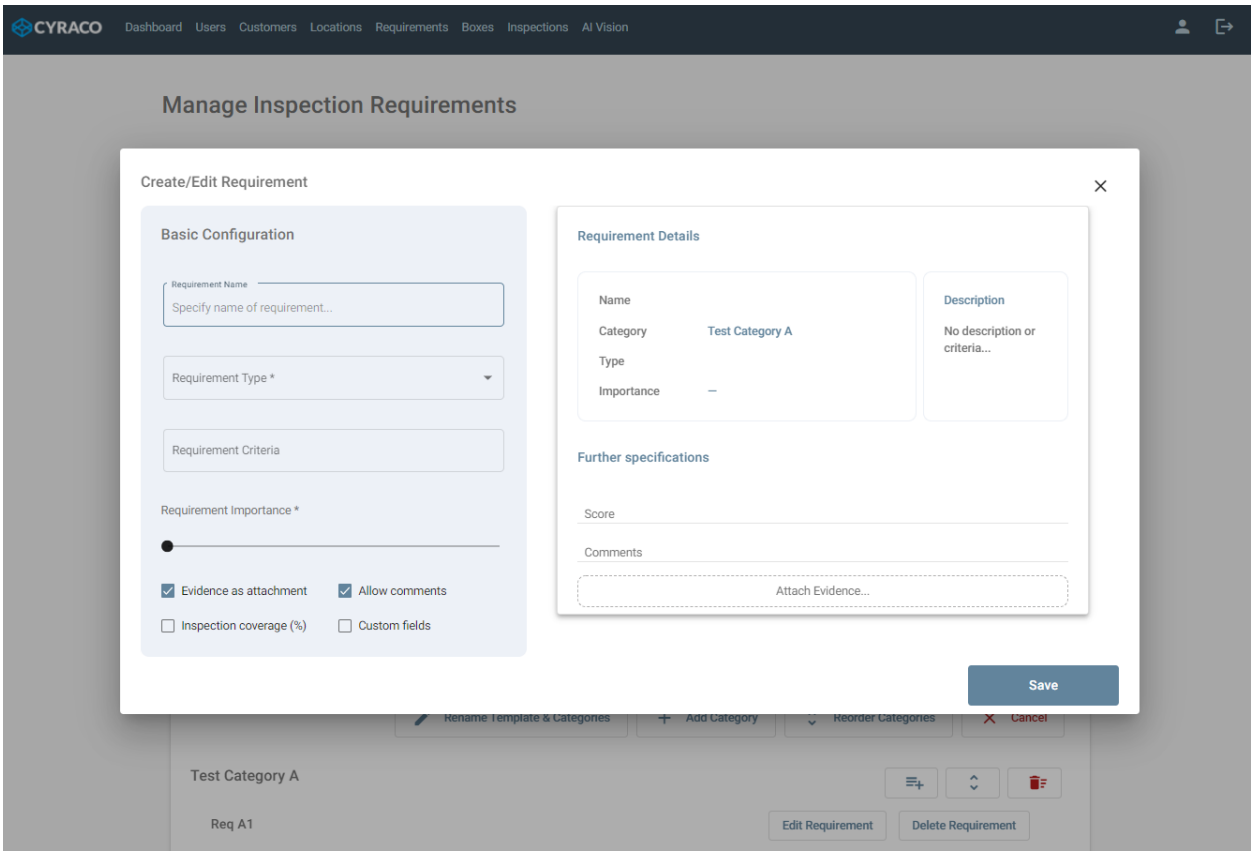
Delete Category screen

1.8.5.5. New Requirement

The user can add one or more requirements in each category by tapping on the respective button and filling in all below fields:

- Requirement Name
- Requirement Type[4]: {Checkbox, Rating %, Free Text}
- Requirement Importance – a number in range from 1 to 10
- Requirement Criteria
- Evidence as attachment
- Allow comments
- Inspection coverage (%)
- Custom fields

[4] Based on the selected Requirement Type, the respective field (checkbox, rating bar, free text) will be displayed in the evaluation's details of the requirement during the audit.



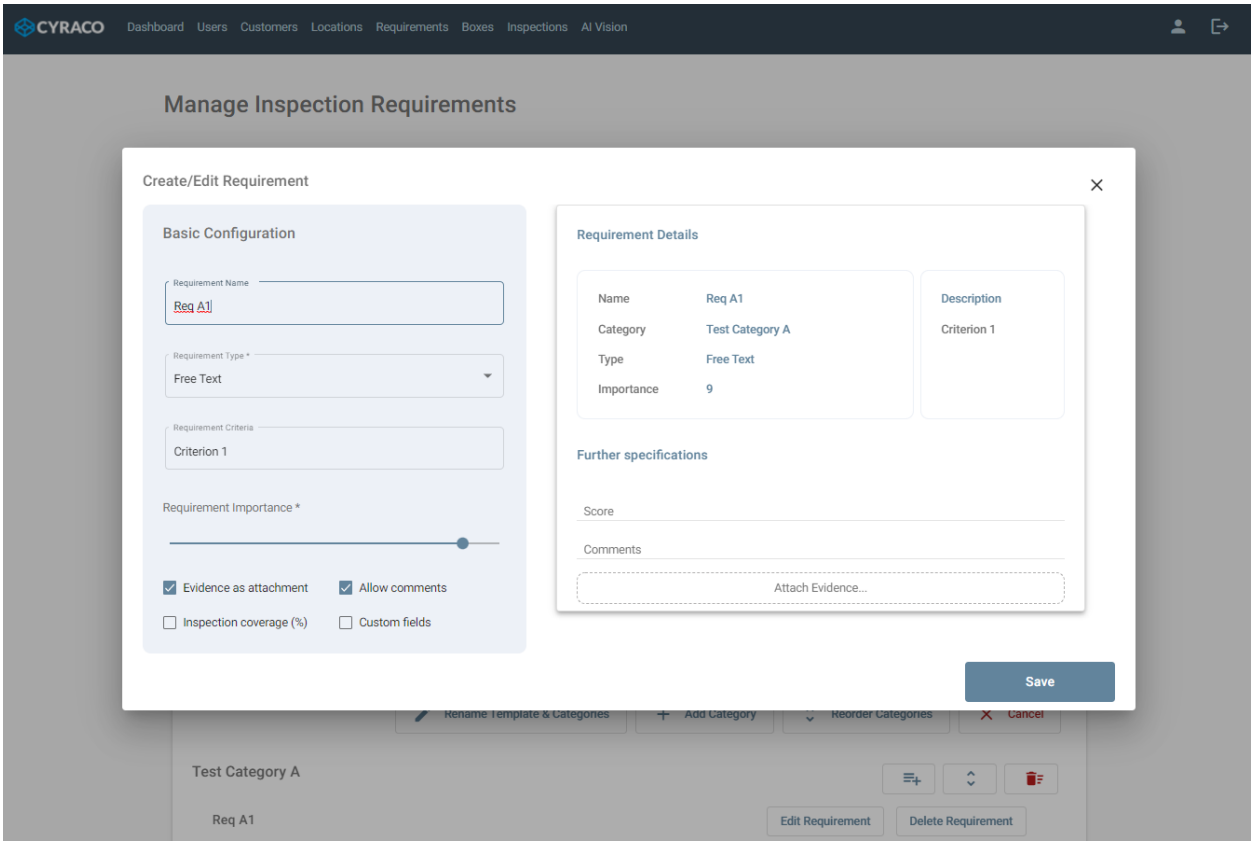
Add Requirement screen

*Note: The user can cancel the requirement's creation by clicking on the **X** icon on the top right of the window.*

1.8.5.6. Edit Requirement

In Edit Template mode, the user is able to modify an existing requirement by clicking the respective button.

Once the user clicks the **Edit Requirement** button, the pop-up window is displayed, and he is able to modify any of the displayed fields. Since the user taps on the **Save** button, the changes are saved and the requirement's details are updated.

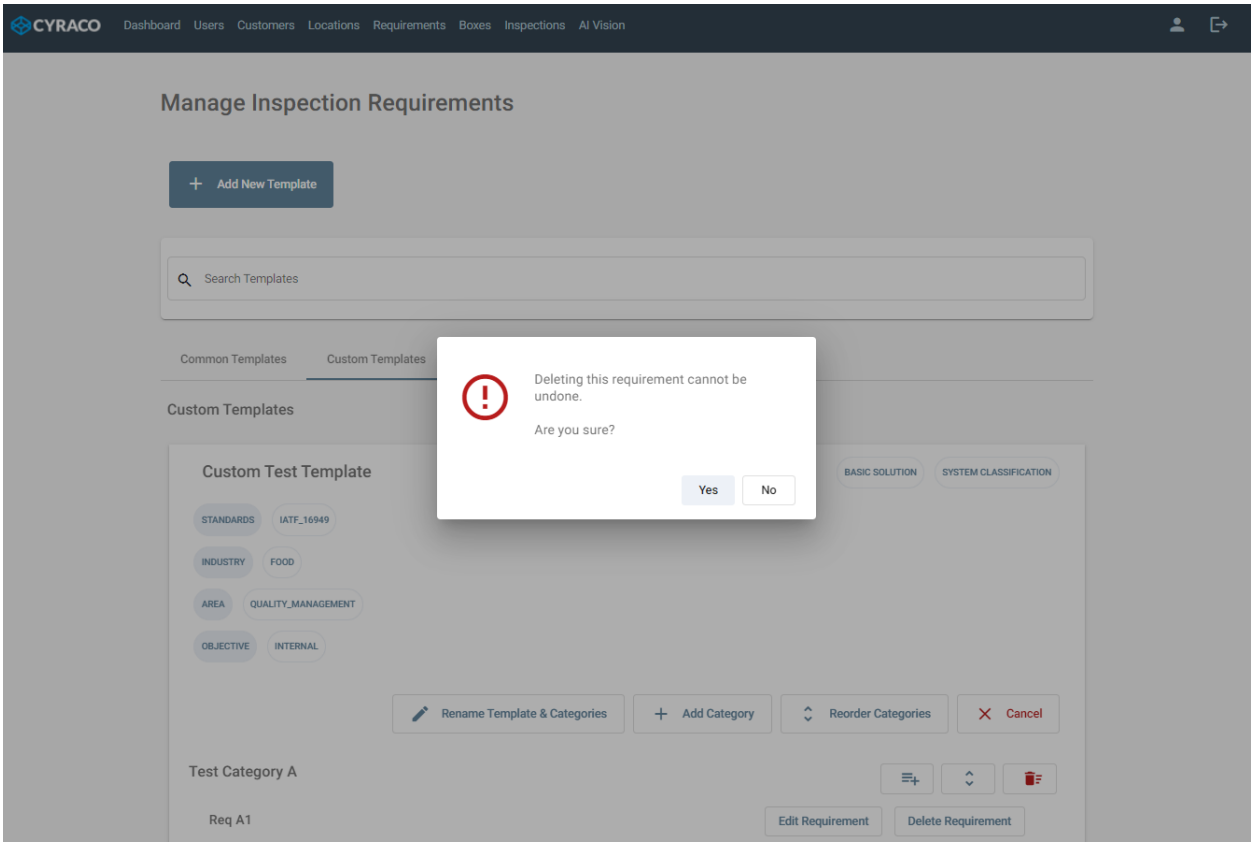


Edit Existing Requirement screen

*Note: The user can discard any modifications by clicking on the **X** icon on the top right of the window.*

1.8.5.7. Delete Requirement

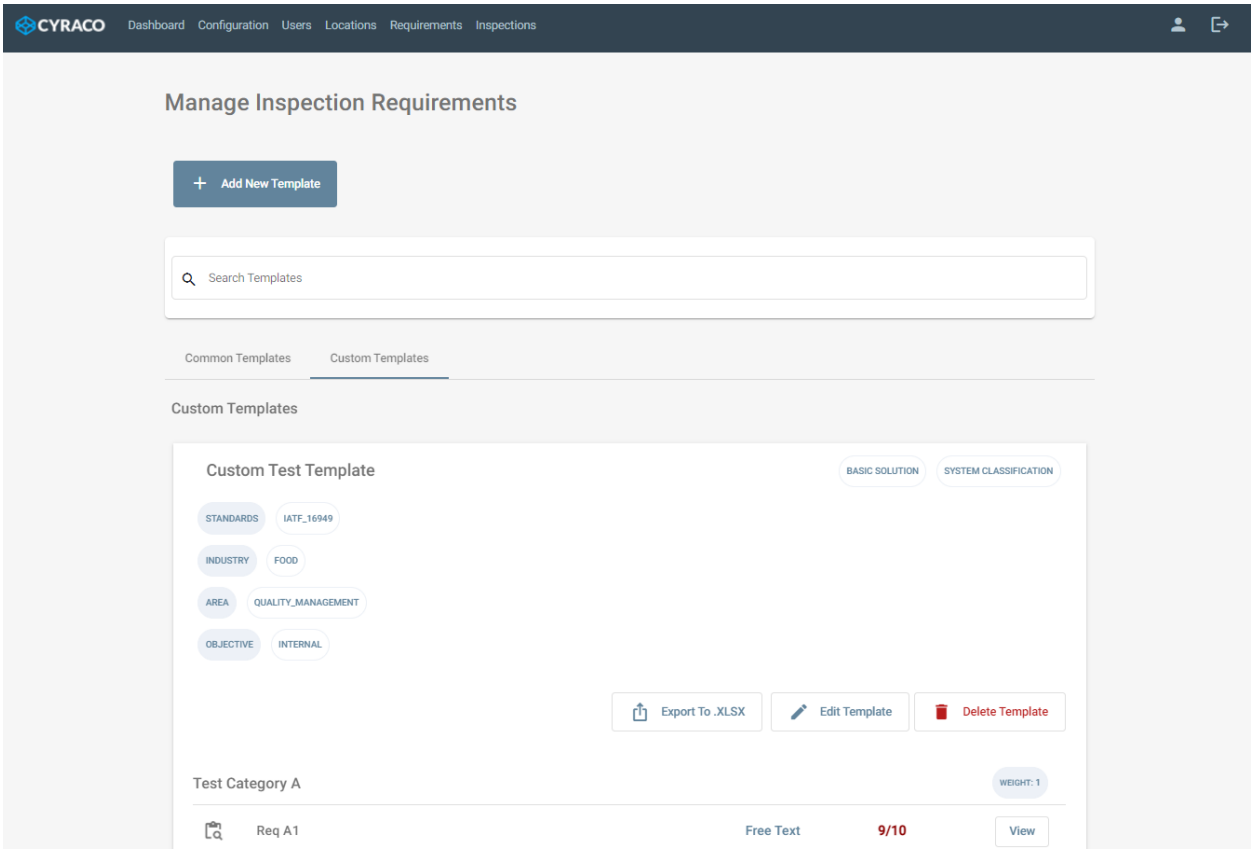
In Edit Template mode, the user is also able to delete an existing requirement. Once the user clicks the **Delete Requirement** button, a pop-up window is displayed in which the user confirms the requirement's permanent deletion. Since the user taps on the **Delete** button, the location is deleted and is not available anymore.



Delete Requirement screen

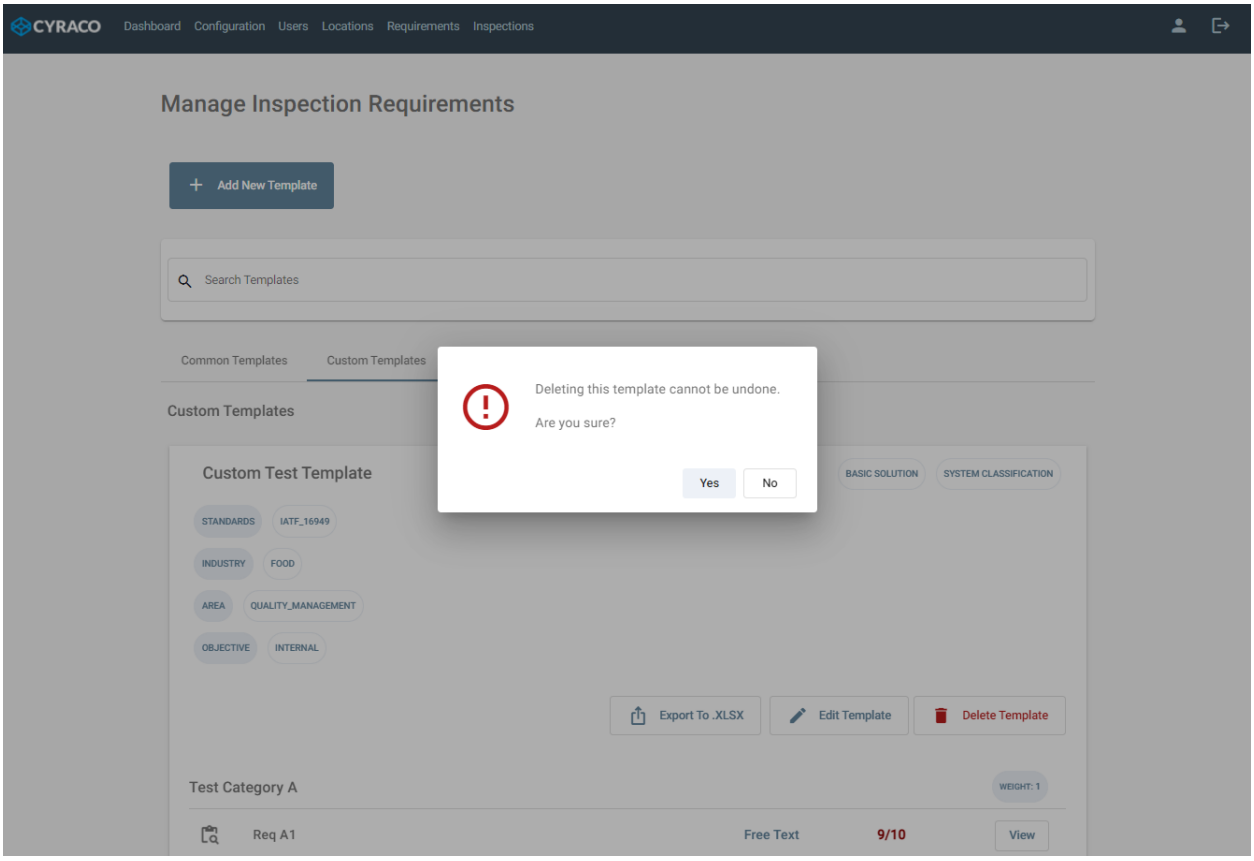
1.8.6. Delete Existing Template

The user is also able to delete an existing template by clicking the respective row of the list and an expanded section is displayed as below:



Template's Details screen

Once the user clicks the **Delete Template** button, a pop-up window is displayed which verifies if the user wants to proceed with the template's permanent deletion. Since the user taps on the **Delete** button, the template is deleted and is not available anymore.



Delete Template screen

1.9. Inspections

While the user navigates to the **Inspections** menu, the list of the inspections of the company is displayed as well as the below options are available:

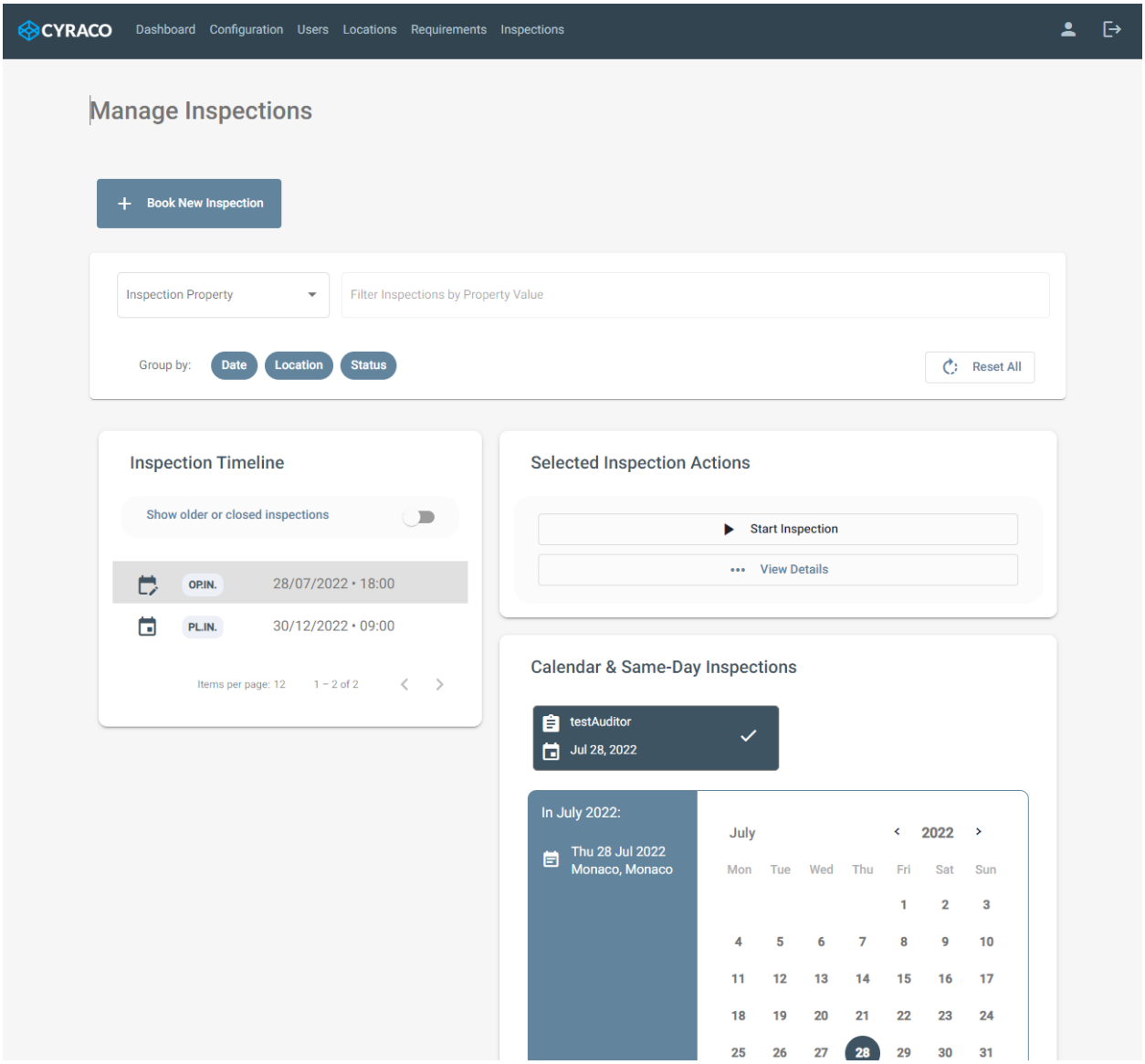
- Book New Inspection
- View Inspection Details
- Edit Inspection
- Cancel Inspection
- Start Inspection
- Replay Inspection
- Process Footage

The applicable statuses of the inspections are the following ones per case:

- **Planned**: when the inspection has just been booked but it has not been started yet
- **Cancelled:** the auditor can cancel an inspection before it starts
- **Open:** when the auditor has started the inspection
- **Closed:** when the audit has completed

1.9.1. Inspections List

The list of inspections is retrieved per customer and the results are displayed per month sorted by date in ascending order in the **Inspection Timeline** section as per the below screenshot. The list of the inspections shows only the ***Planned*** and ***Open*** inspections of the current or future dates, although the user can view the older or closed ones by switching the respective toggle. While in the **Inspection Calendar**, the user can review the inspections on a selected date.



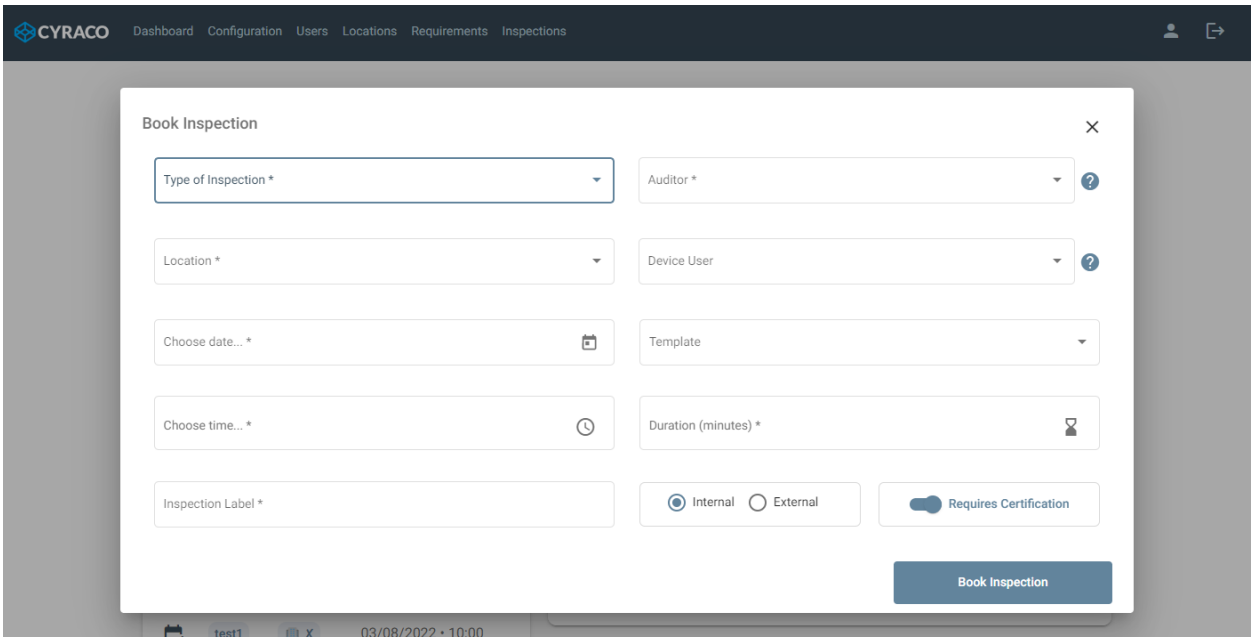
Inspections List screen

Moreover, the inspections can be searched by selecting the desired property and typing any detail in the respective search bar which is located above the list. Furthermore, the retrieved inspections can be grouped by **Date**, **Location** or **Status**.

1.9.2. Book New Inspection

By clicking the **Book New Inspection**[5] button, a pop-up window is presented, and the admin user has to provide the following details in order to book a new inspection:

- Type of Inspection: {Basic – Mobile Only, Box – Smart Glasses & Box}
- Location – retrieved from the locations that admin user has already configured
- Date
- Time
- Auditor
- Device User
- Template
- Duration
- Internal / External
- Requires Certification – enable or not
- Inspection Label



Book New Inspection screen

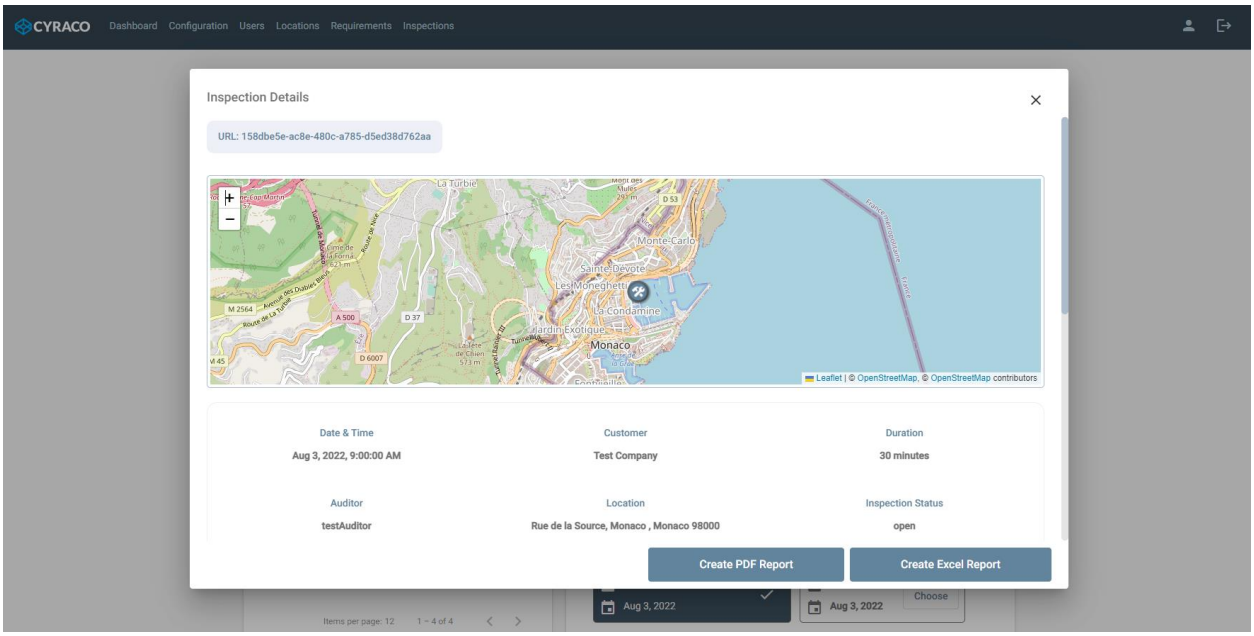
*Note 1: The user can cancel the inspection's booking by clicking on the **X** icon on the top right of the window.*

When the inspection is successfully booked, an email notification is sent both to the assigned Auditor and the assigned Device Usser referring to the inspection details such as location, date, time, etc.

[5] *An Inspection can be booked by either the administrator user or the regular client users who have the **Auditor** property.*

1.9.3. Inspection Details – Create Reports

Once the user clicks to the **View Details** button of the inspection, he is able to view the respective information as well as to generate PDF and Excel reports. The details are presented as below:

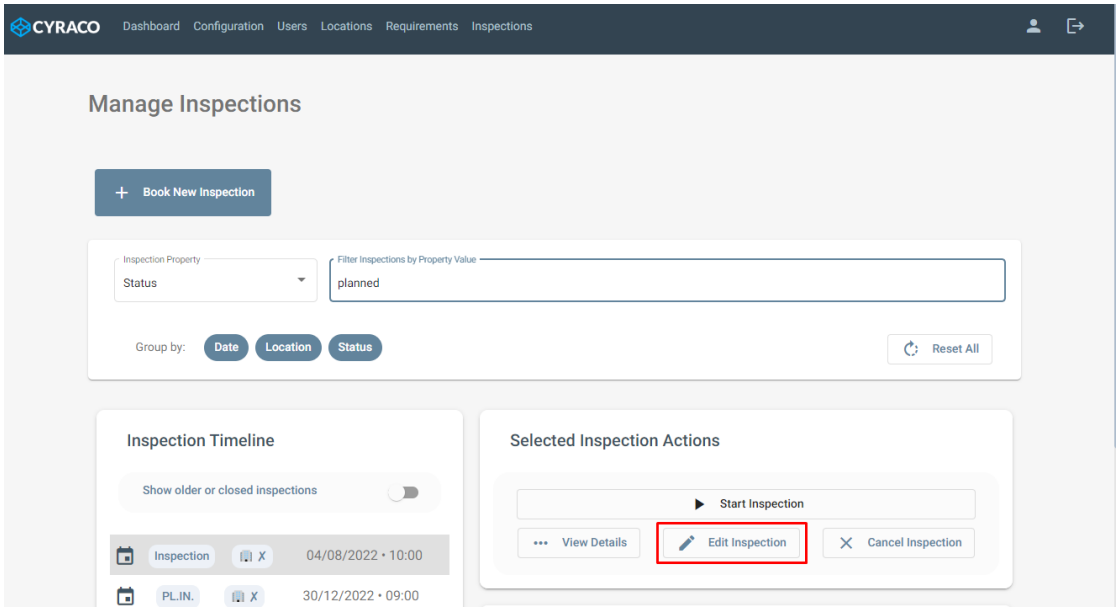


View Inspection Details screen

*Note: The user can dismiss the displayed window by clicking on the **X** icon on the top right of the window.*

1.9.4. Edit Inspection Details

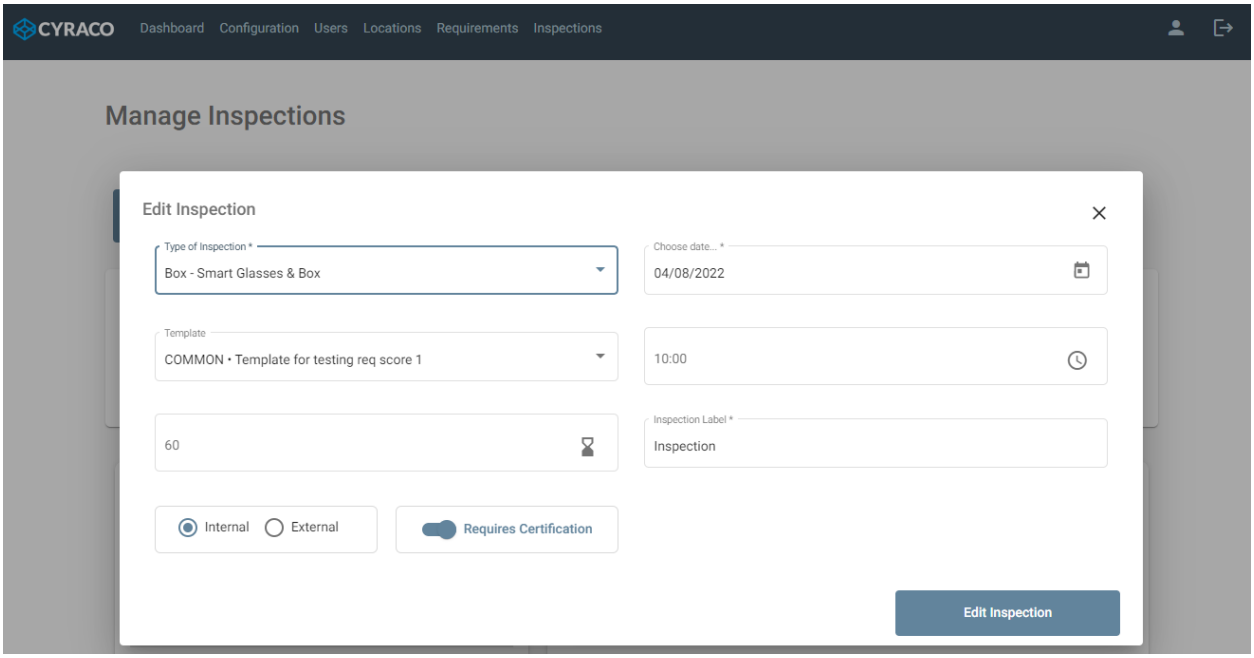
The eligible auditor can edit the details of an inspection – only if the status is ***Planned*** – by clicking the respective button as per the below screenshot.



Edit button - Inspection List screen

Once the user clicks the **Edit Inspection** button, he can modify the following fields:

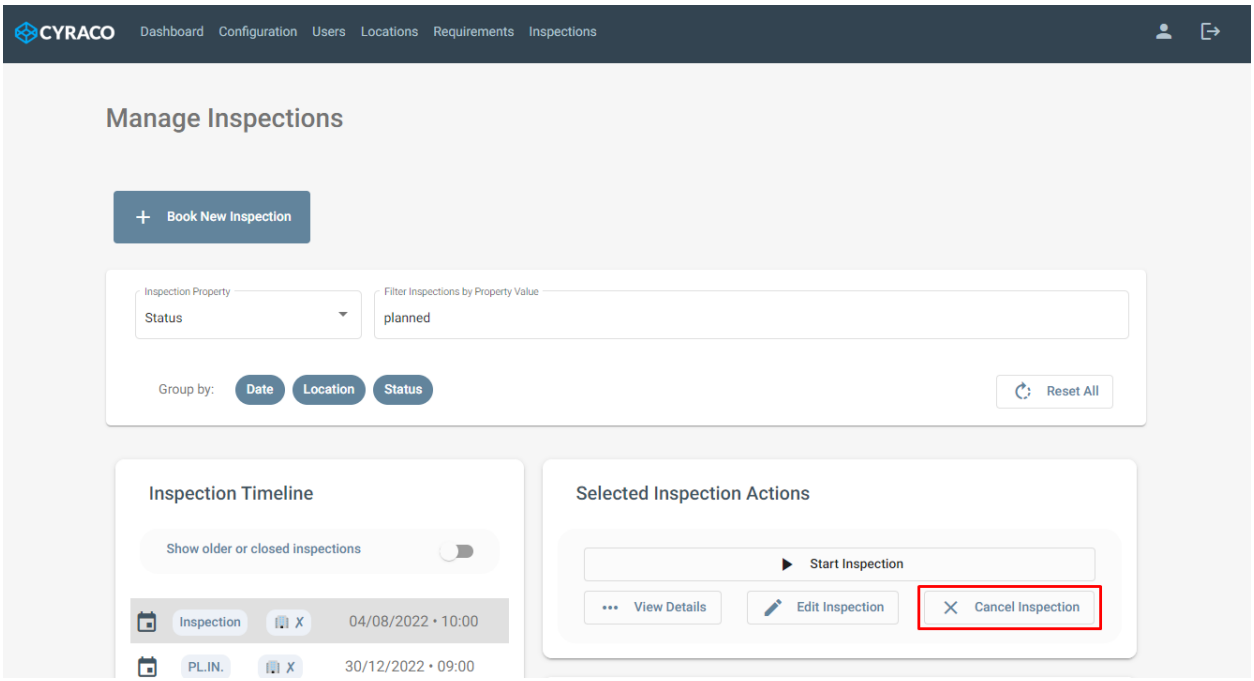
- Type of Inspection
- Template
- Duration
- Date
- Time
- Inspection Label
- Internal/External
- Requires Certification



Edit Inspection Details screen

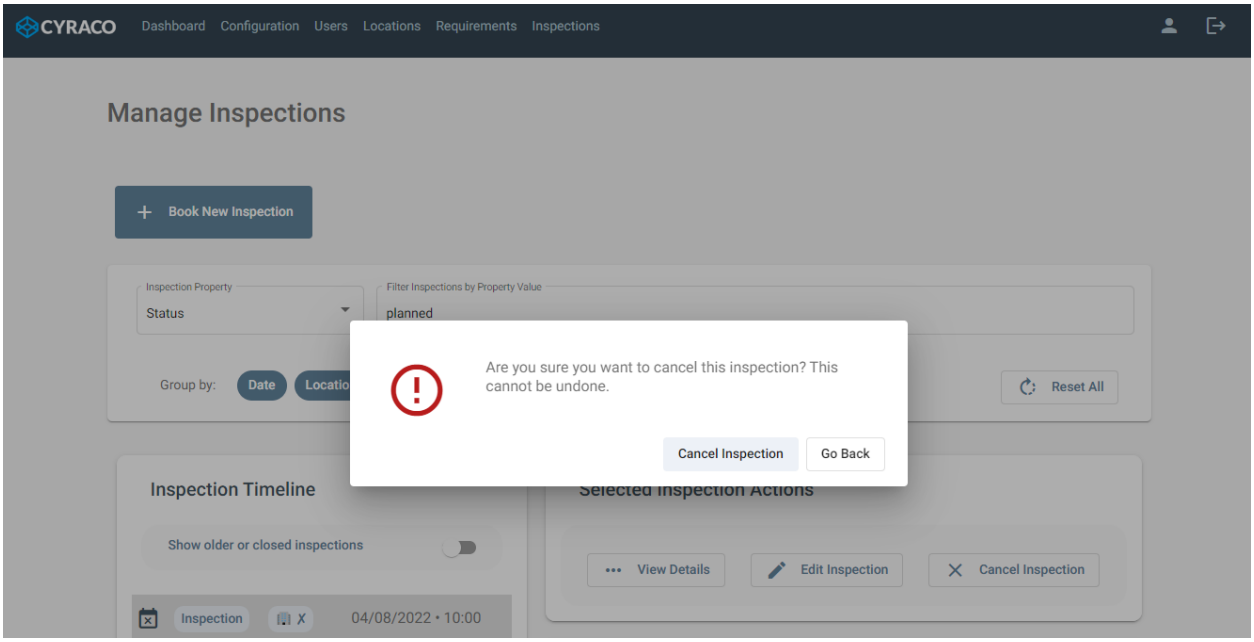
1.9.5. Cancel Inspection

Since the status of the inspection is ***Planned***, the eligible user can cancel it by clicking the **Cancel Inspection** button.



Cancel button - Inspection List screen

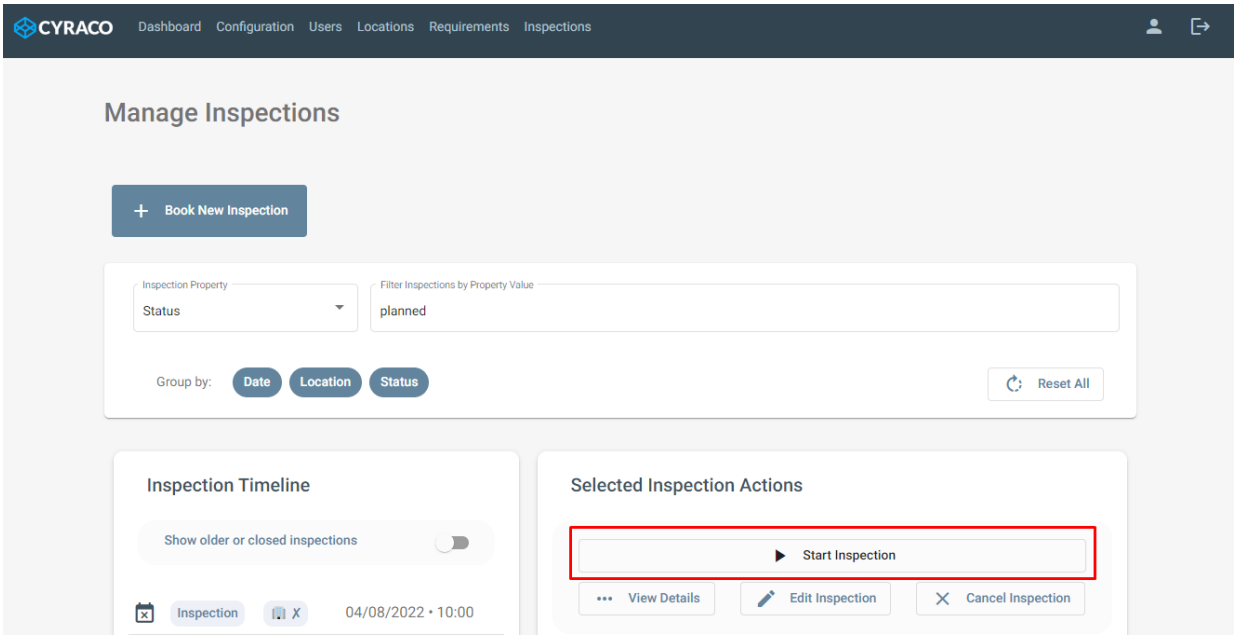
Once the user clicks the button, a pop-up window is displayed which verifies if the user wants to proceed with the inspection's cancellation. Since the user taps on the **Cancel Inspection** button, the status of the inspection is set ***Cancelled***.



Cancel Inspection screen

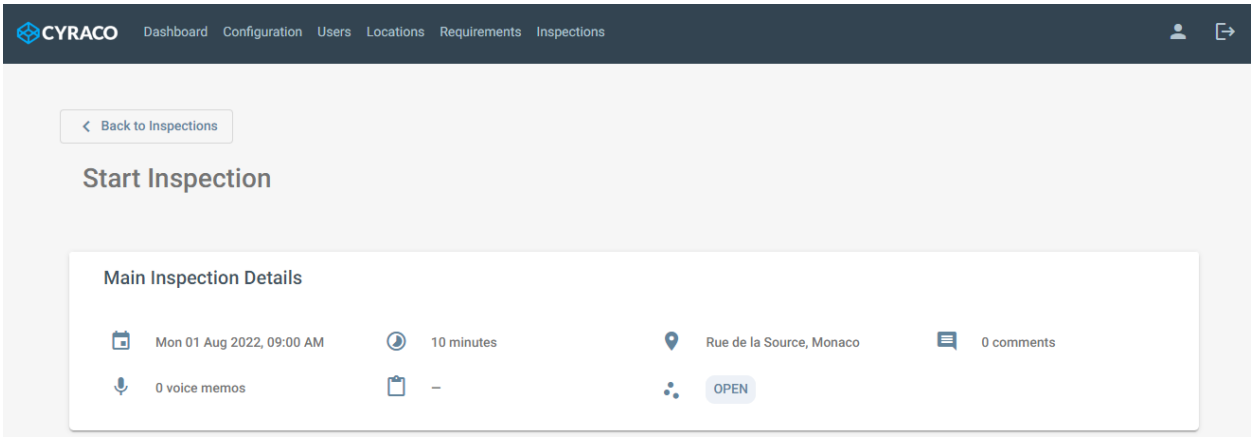
1.9.6. Start Inspection

Each ***planned*** inspection can be opened by the assigned auditor by clicking the **Start Inspection** button of the selected inspection as per the below screenshot. In case the user taps on the **Start Inspection** button, the status of the inspection is set to ***Open***.



Start Inspection button - Inspection List screen

Once the user navigates to the **Start Inspection** functionality, he can review the **Main Inspection Details** section in which the following information is presented as below:

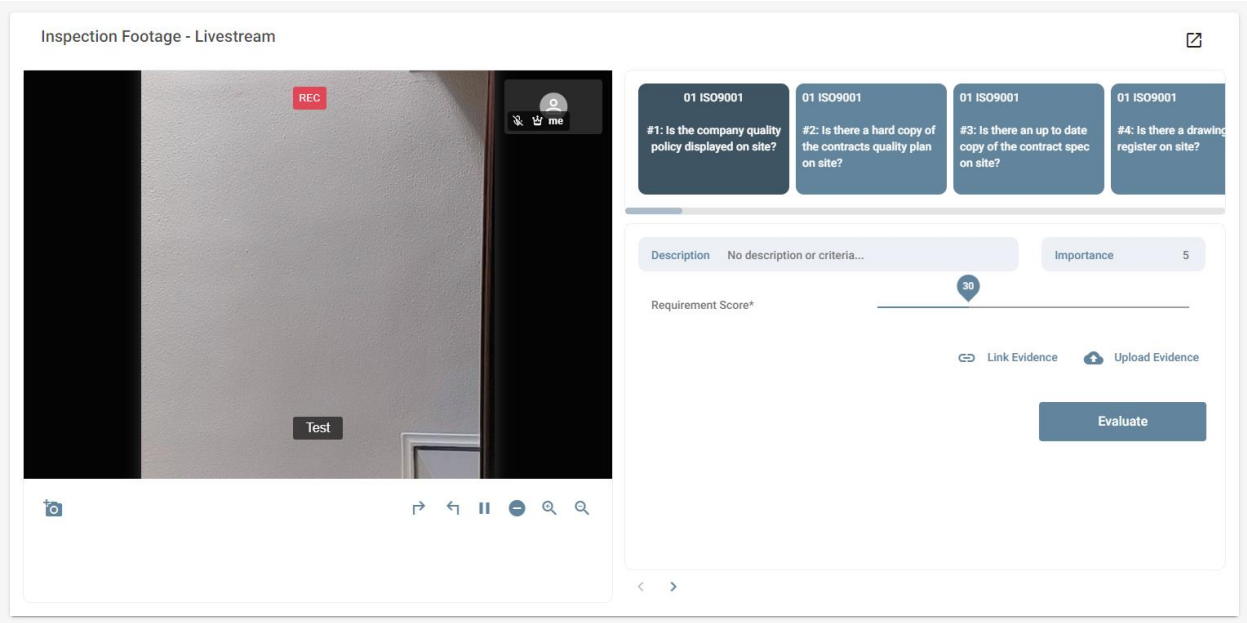


Main Inspection Details section

The **Inspection Footage – Livestream** section gives to auditor the ability to watch the inspection process via livestreaming video. During the livestreaming, the auditor can guide the device user using the respective buttons and take screenshots anytime.

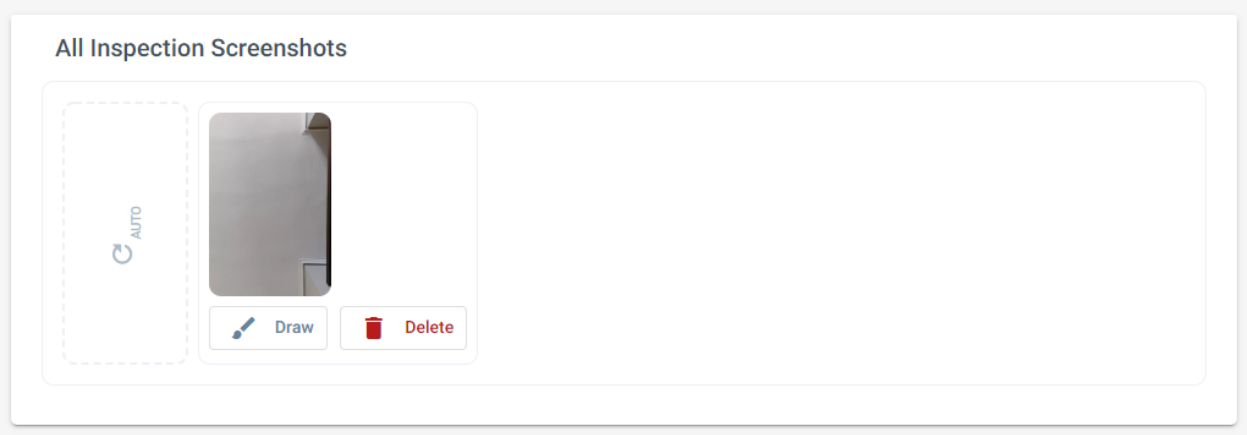
While the audit is going on, the user is able to evaluate the requirements by providing the score or relevant comments. Also, any evidence, such as screenshot or uploaded file, can be linked or uploaded to the evaluated requirement.

The icon on the top right corner opens the requirements in a new browser-window, so that the evaluation will be easier and more convenient.



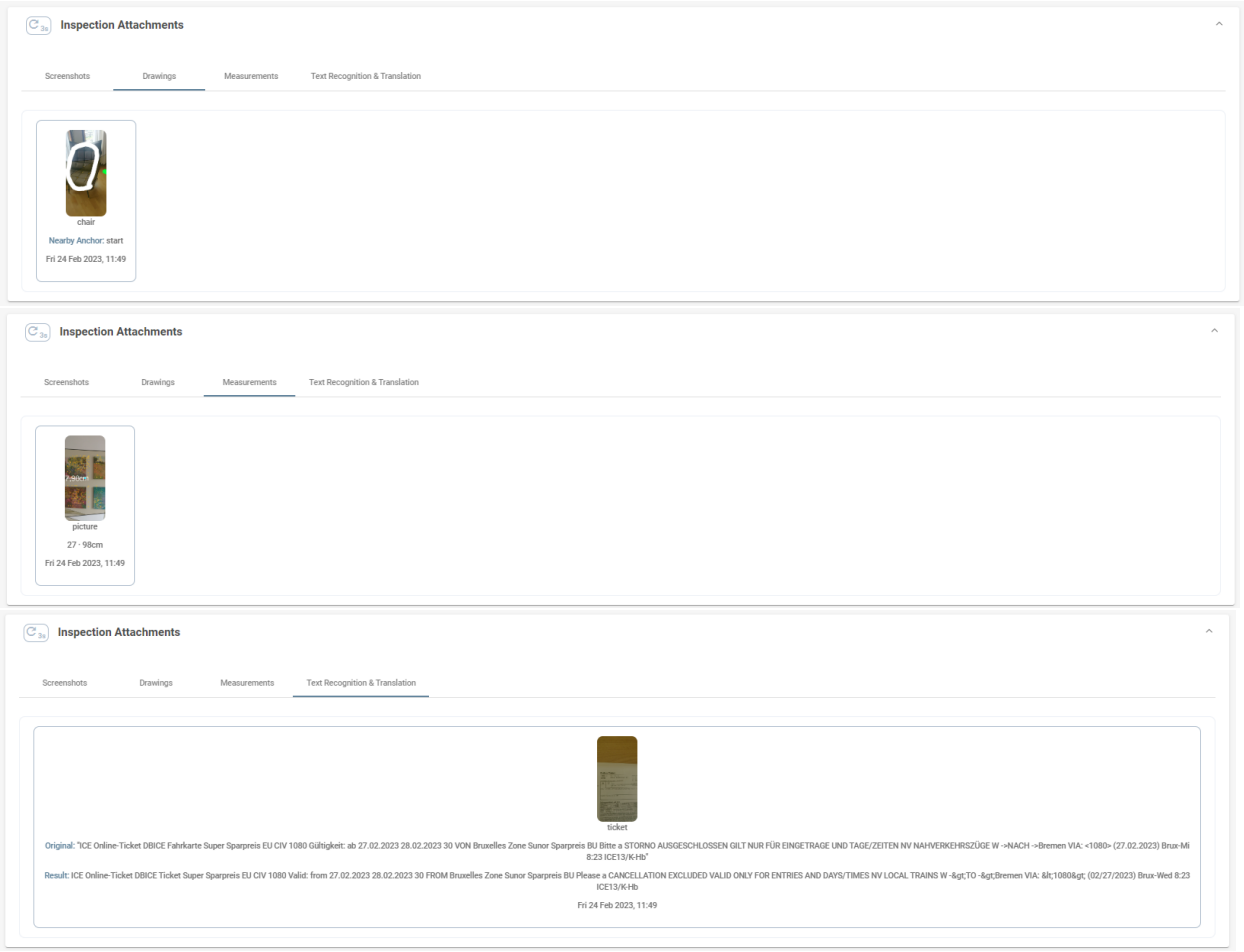
Inspection Footage – Livestream

In case of existing screenshots, the **All Inspection Screenshots** section is presented and the user can manage them.



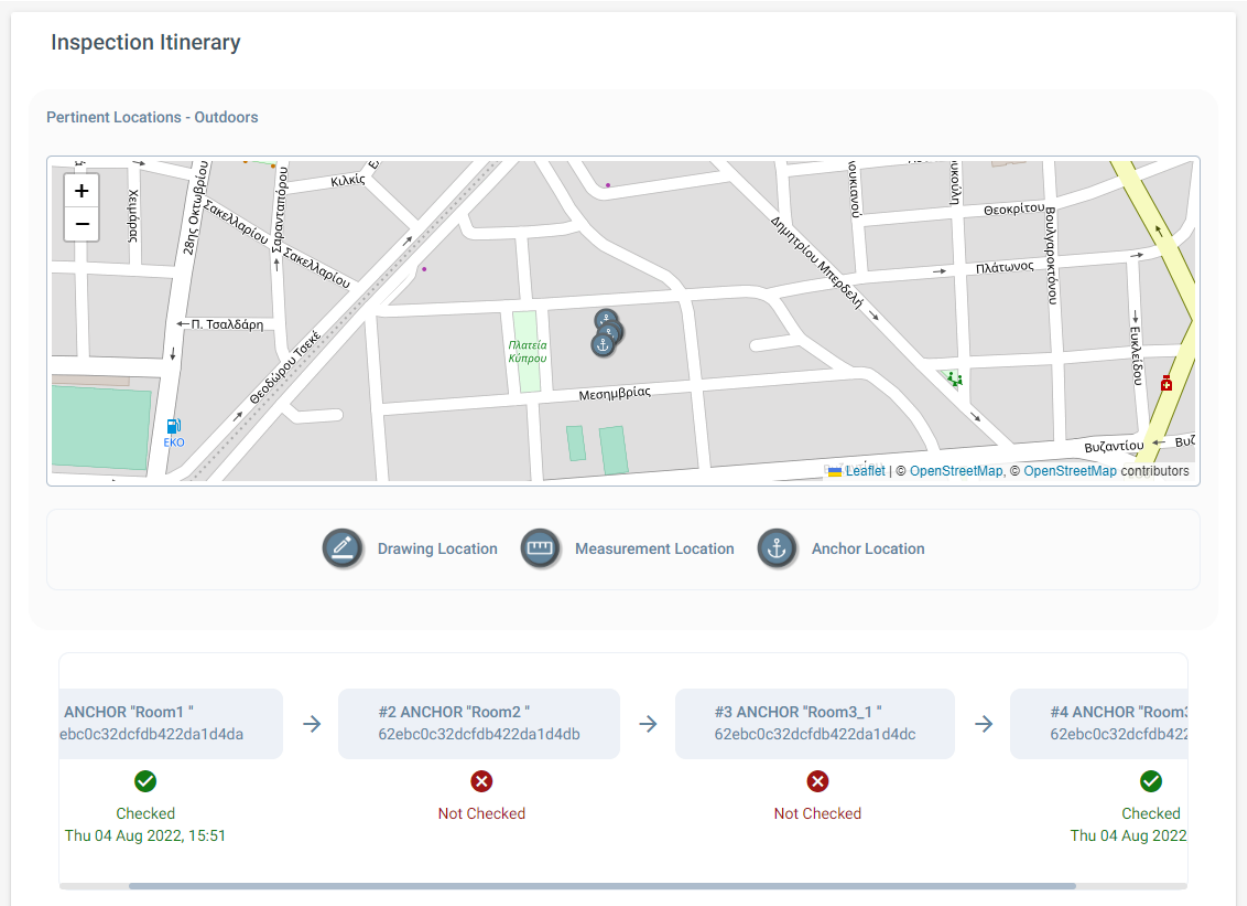
All Inspection Screenshots

In case of existing AR objects, such as drawings, measurements or translations, the corresponding images and data is also presented.



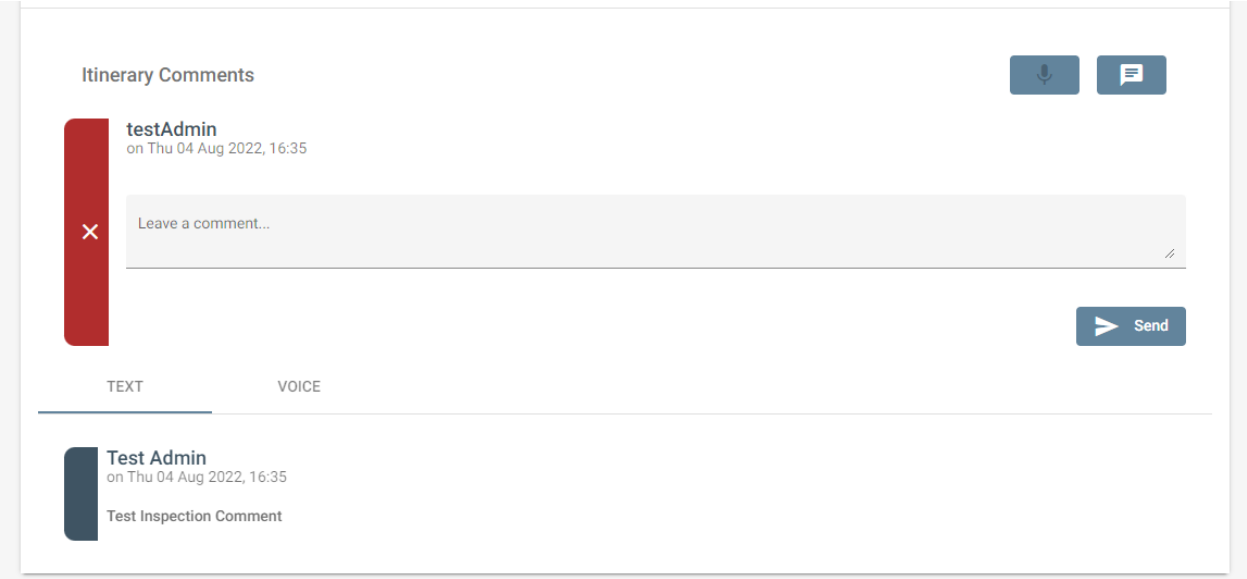
All Inspection Attachments, including AR objects

In **Inspection Itinerary** section, the user is able to view the defined anchors as well as the comments related to the inspection and/or to add a new one. As per the below screenshot, the defined anchors are displayed on the map and any of them are resolved by the device, are marked as **"Checked"** with green color- the unresolved ones are presented in red.



Inspection Itinerary

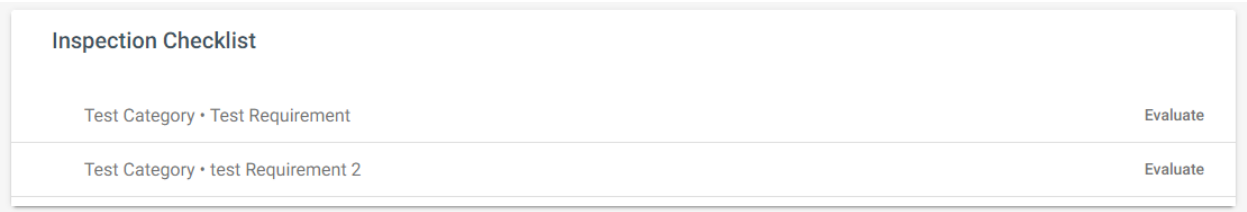
The auditor can make comments for the inspection either by typing or recording them.



Itinerary Comments

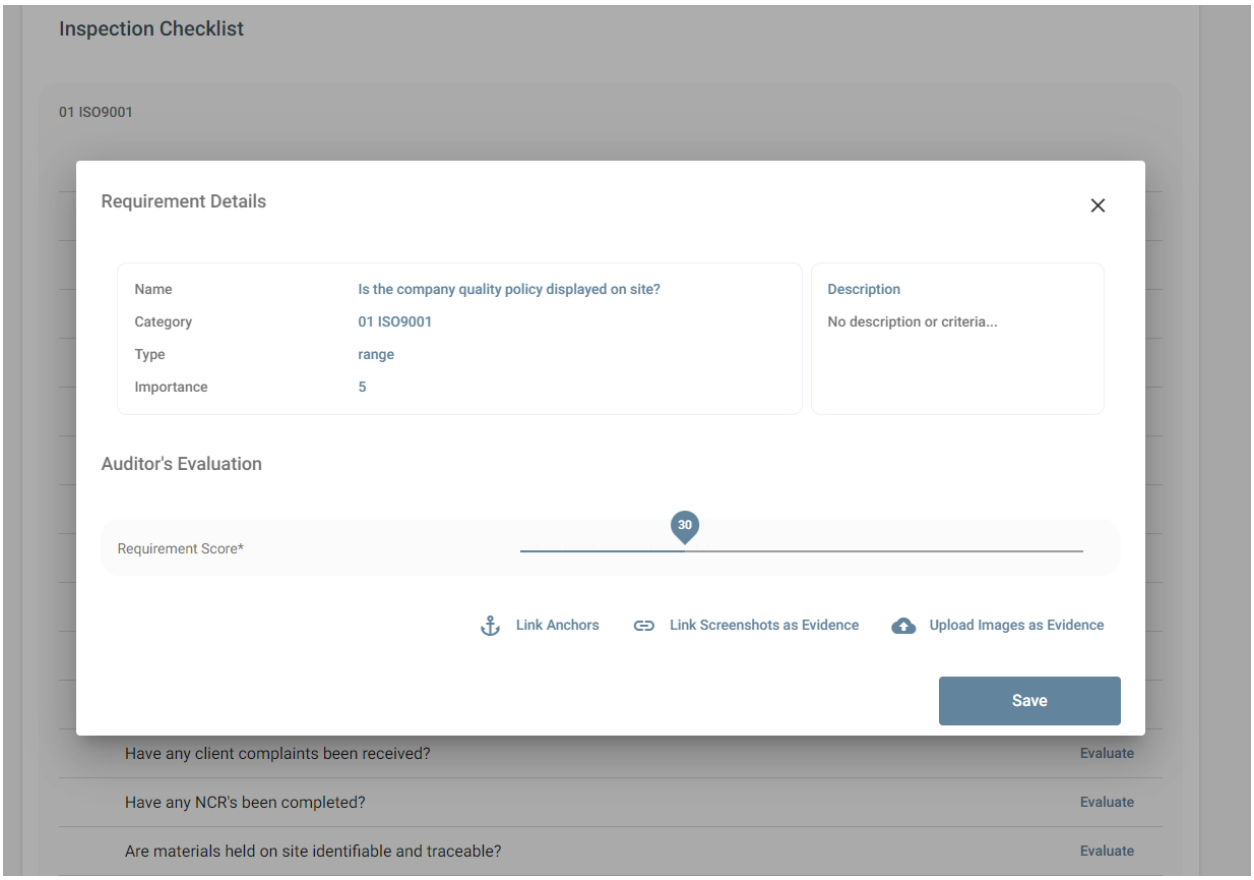
*Note: The user can cancel the comment's creation by clicking on the **X** icon on the left of the section, but he is not able to delete it.*

In the **Inspection Checklist** section, the requirements are listed based on the selected template of the inspection.



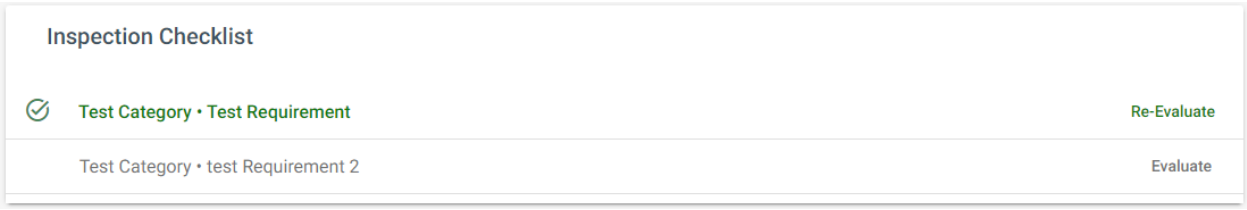
Inspection Checklist

While the respective audit is performed for each requirement, the user can also tap on the **Evaluate** button in order to provide the relevant score, link anchors and screenshots, upload images or make any comments.



Evaluate Requirement screen

Once the user saves the provided feedback, the requirement is considered Evaluated thus the check mark is displayed next to the title as per the below screenshot. In meanwhile, the user is able to modify his input by clicking the **Re-Evaluate** button.



Inspection Checklist

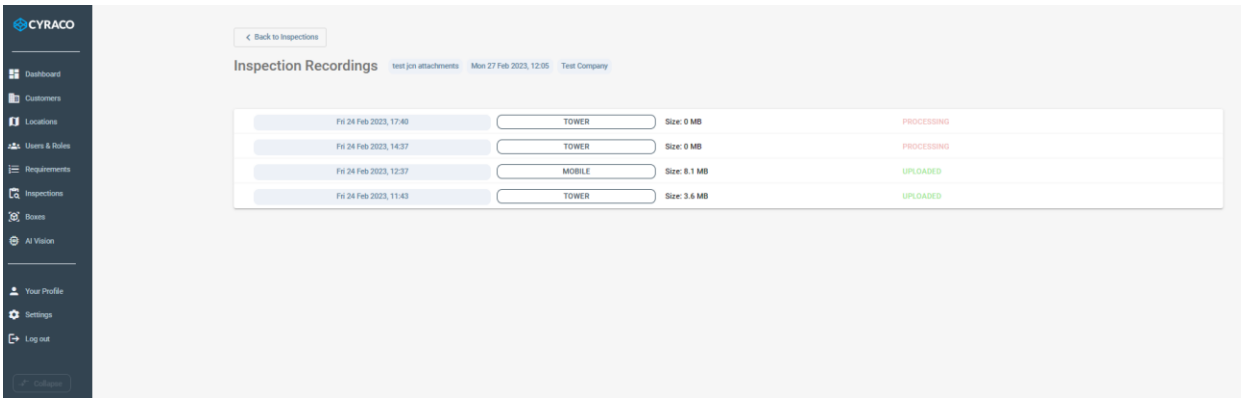
1.9.7. Close Inspection

Each inspection can be closed by the auditor either when all requirements of the checklist are evaluated or when the inspection has no assigned device user.

The **Close Inspection** button is enabled under the inspection list when all requirements of the checklist are evaluated and the informative message is displayed which prompts the user to close the inspection.

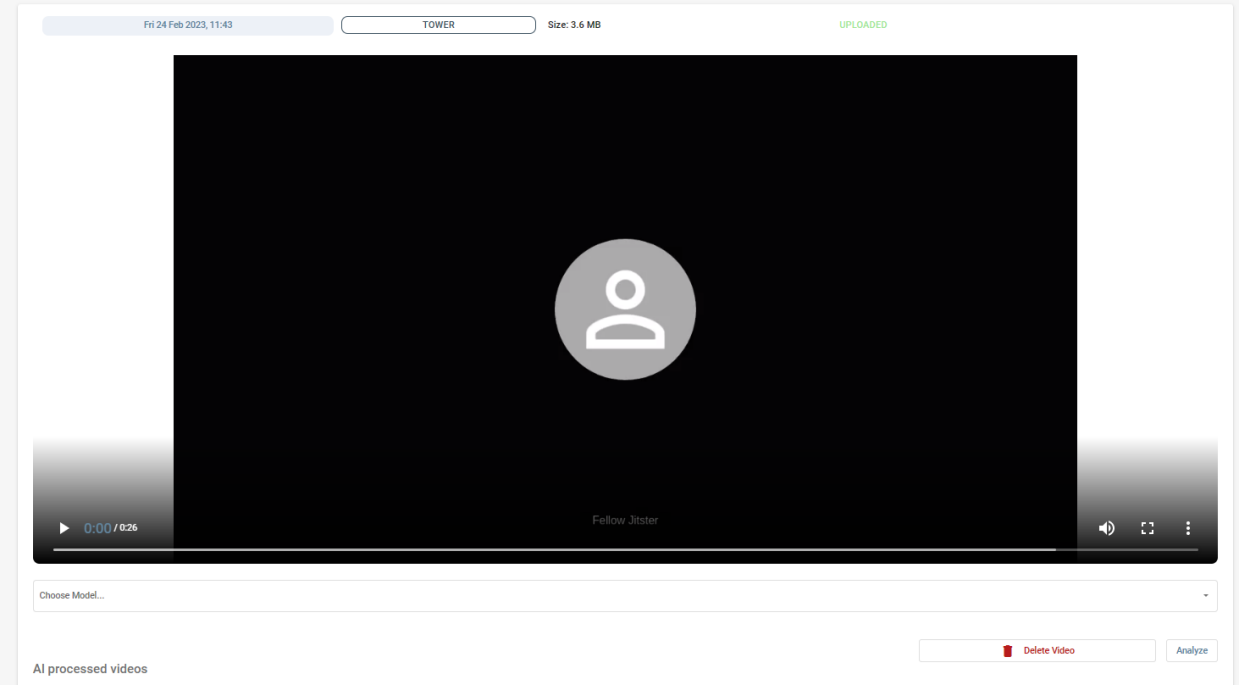
1.9.8. View Recordings

While the user selects an inspection of the respective list, the **View Recordings** button is available only if at least one inspection video exists. Once the user selects to process the footage, he is redirected to the following screen in which the uploaded/linked videos are listed, as well as their source, timestamp and status.



Inspection Footage List screen

By selecting a row of the list, an expanded section is displayed as below, in which the user has to choose the desired **Model** from the relevant list and tap on the **Analyze** button in order the video to be processed accordingly. Below the original video are shown the corresponding AI processed videos for that recording.



Inspection Footage Analyze screen

2. Inspection Device

The Android app with AR running on Unity3D engine will be compatible with both the glasses and most smartphones. It provides partial guiding & inspection functionalities (itinerary, distance measurement, screenshots, audio and written notes, inspection checklist).

Depending on the role, the logged-in user is able to access and use the eligible functionalities such as:

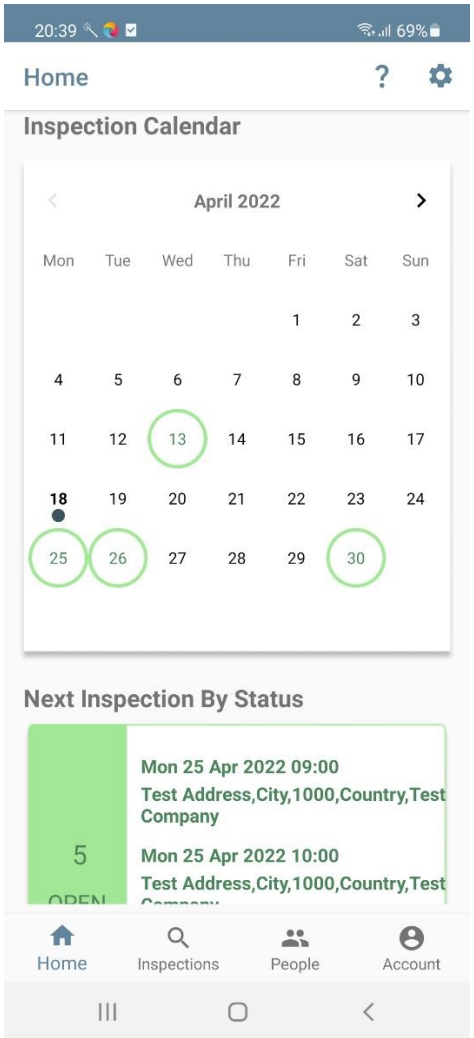
- Home screen – Dashboard with inspection summary and calendar
- Inspection Screen
    - Inspection Management: Start, Stop Inspection
    - Video streaming sessions with self-hosted Jitsi framework
- People – listing of companies and users
- Account screen – Account details

2.1. Home

Once the user logs in, he is redirected to the Home screen in which the **Inspection Calendar** is displayed as well as the **Next Inspection By Status** section.

The **Inspection Calendar** displays the booked inspections for the current month and the next two.

In the **Next Inspection By Status** section, the **Open**, **Planned** and **Closed** inspections are presented per the specific company.



Home Screen

2.2. Inspections

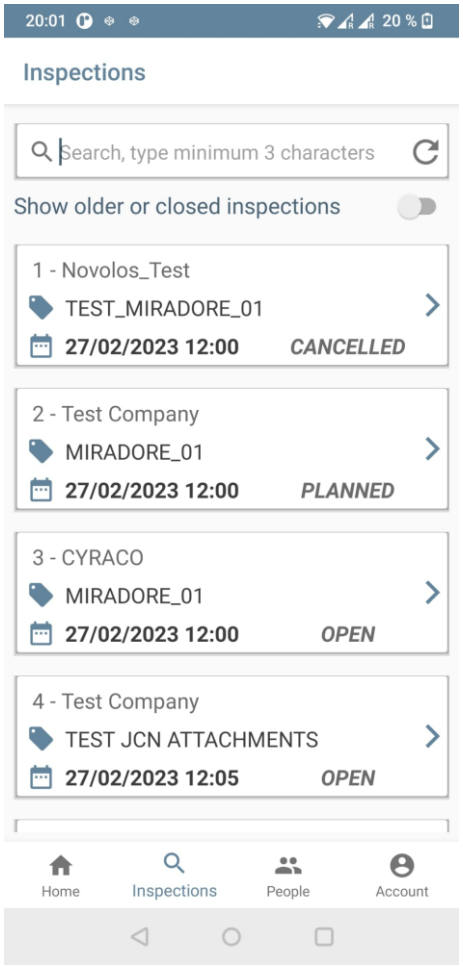
In the inspections screen, all inspections are displayed sorted by date in ascending order while a search bar exists in which the user is able to type and search for an inspection.

The search can be performed by the following formats:

1. Customer Name
2. Inspection Label
3. Status
4. City
5. Country

6. Date with the following formats:
   a. dd/MM/yyyy HH:mm
   b. dd/MM/yyyy
   c. MM/yyyy

Additionally, the user can choose to display as well older or closed inspection that are no longer accessible for execution.



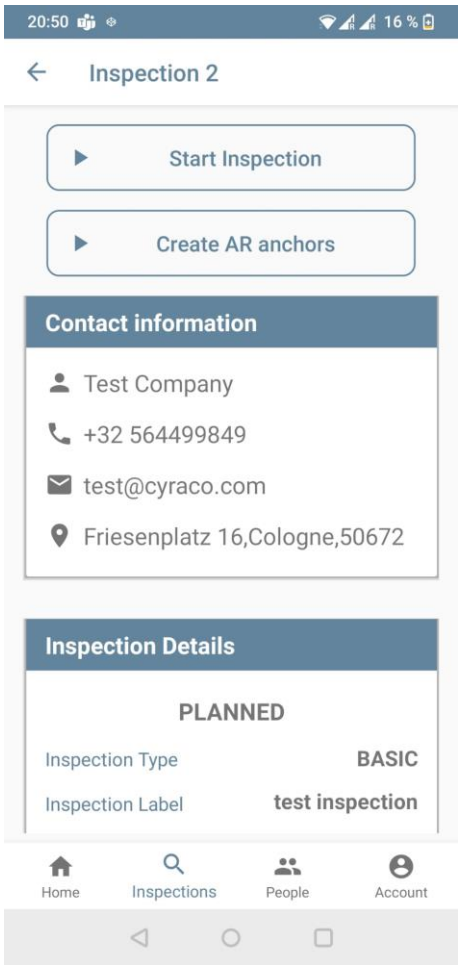
Inspections List screen

2.2.1. Inspection screen

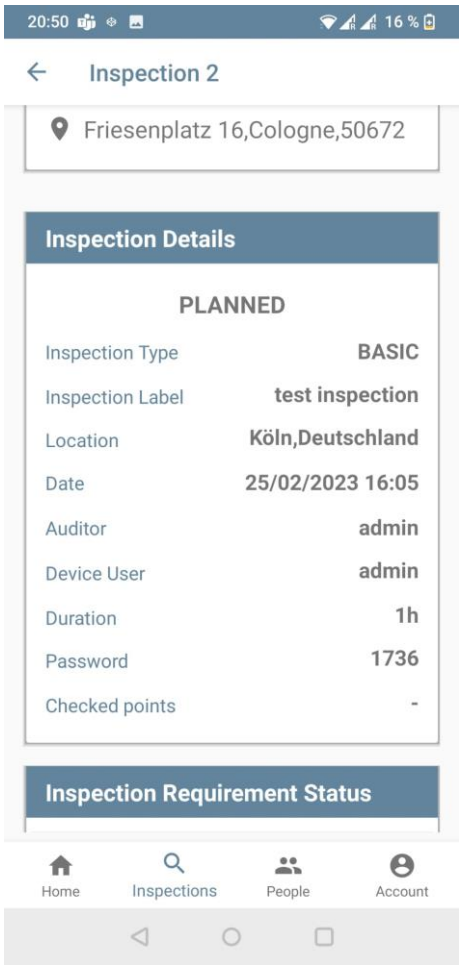
Once the user selects an inspection, then he is redirected to the main inspection screen in which the following options and information are displayed:

- Start Inspection: Opens menu to choose the different inspection execution options
- Create/Edit AR Anchors: Starts AR session to create AR itinerary
- Contact Information: Shows contact information for location
- Inspection Details: Shows main inspection details, such as type, label, date, location and users

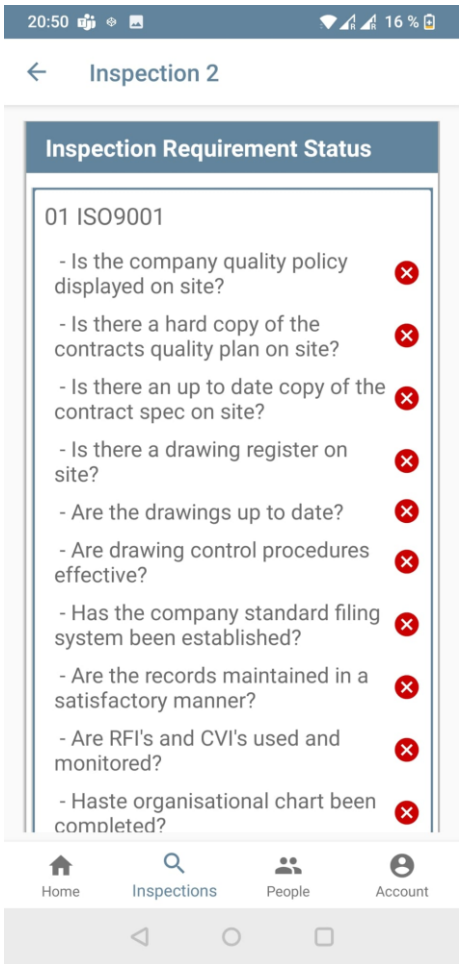
- Inspections Requirement Results: Shows the status of each requirement in the corresponding inspection checklist



Inspection screen: Actions and Contact Information



Inspection screen: Inspection Details



Inspection screen: Inspection Requirement Status

2.2.1.1. Create AR anchors

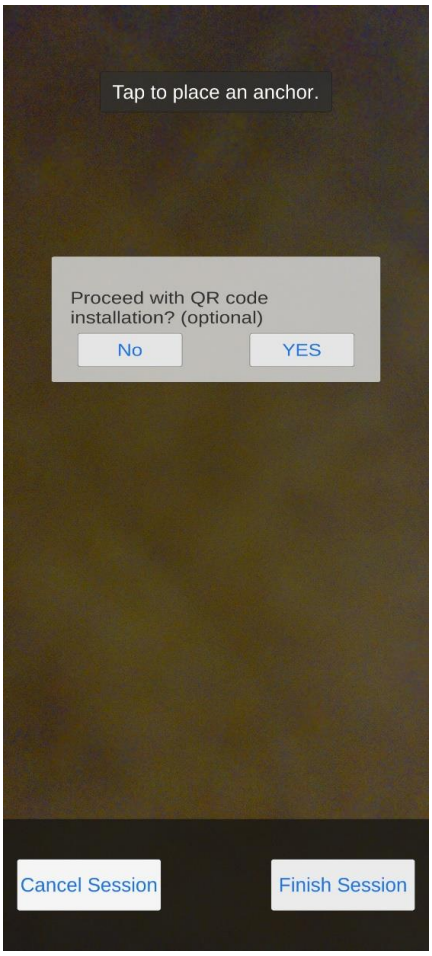
The **Create AR anchors** button is displayed only if no anchors have been created. Once the button is tapping, the Unity session starts and the user has to locate the anchors.

Create AR anchors screen

When an anchor is locate, the user has to type the relative name and save it as per the below screenshot.

Create AR anchors screen - Save anchor

Since all the desired anchors are successfully created, he can save them by tapping the **Finish session** button. Otherwise, the user can cancel the anchors creation via the **Cancel session** button. In case the anchors are saved, the user is able to install the QR codes of each anchor.



QR code installation screen

2.2.1.2. Edit AR anchors

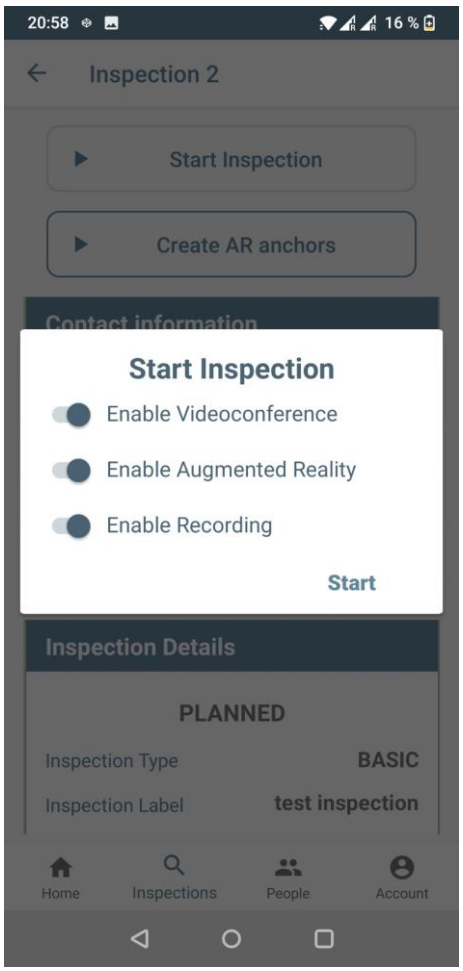
The **Edit AR anchors** button is displayed only if the anchors have previously been created and the user is going to modify them. Once the user taps the button, a confirmation pop-up window is displayed which asks the user whether he wants to delete the anchors or not.

In case the user selects to delete the anchors, they are deleted and the user has to create the new anchors.

2.2.1.3. Start Inspection

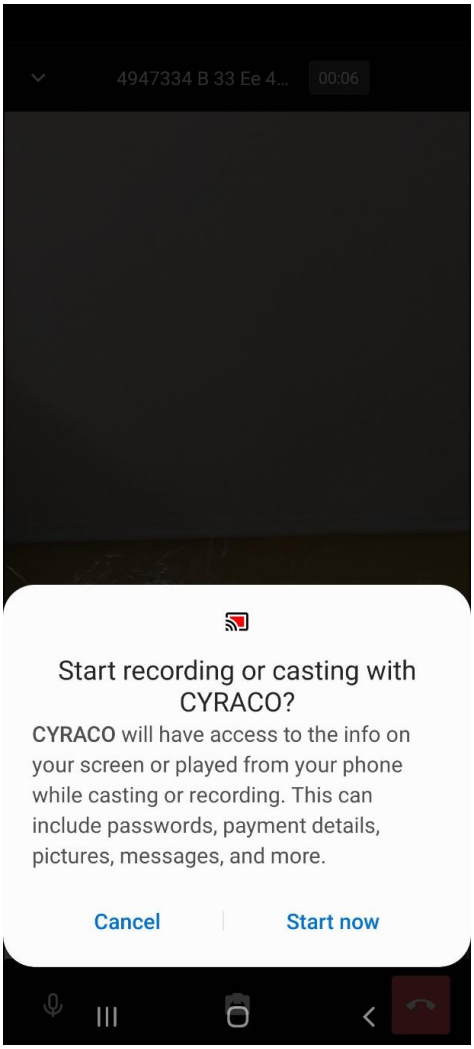
The **Start Inspection** button is displayed only if the inspection is for the current or future date and its status is Open. In case the inspections date is in the past, then the button is not visible. When the user taps on the button, he is asked to choose from the different available inspection options:

- **Enable Videoconference:** Allows user to join videoconference with the tower. Note that this option is disabled when there is no connectivity, thus entering automatically on offline mode.
- **Enable Augmented Reality:** Allows user to enter with AR functionalities, such as indoor navigation, AR drawing, AR measuring and OCR translations, as well as to show historic data from previous inspections on the same location. If this option is disabled, the user will enter on a regular videoconference mode.
- **Enable Recording:** Allows user to automatically record the inspection and send it to the tower after it has been completed.



Confirmation of start inspection screen

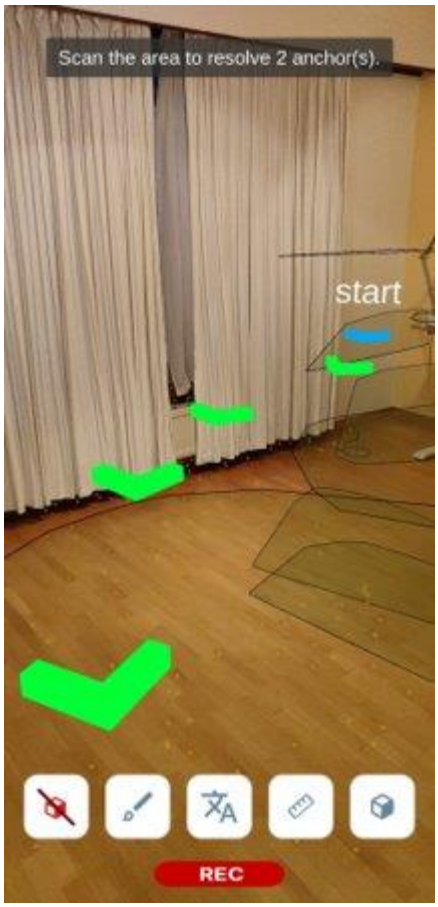
When the inspection starts with the enabled recording mode, the user is prompted to start screen recording, as required by Android guidelines. Once the user selects to start recording the screen, the livestreaming session starts. Otherwise, the app navigates back to the inspection screen.



Confirmation of start screen recording

2.2.1.4. Start AR session

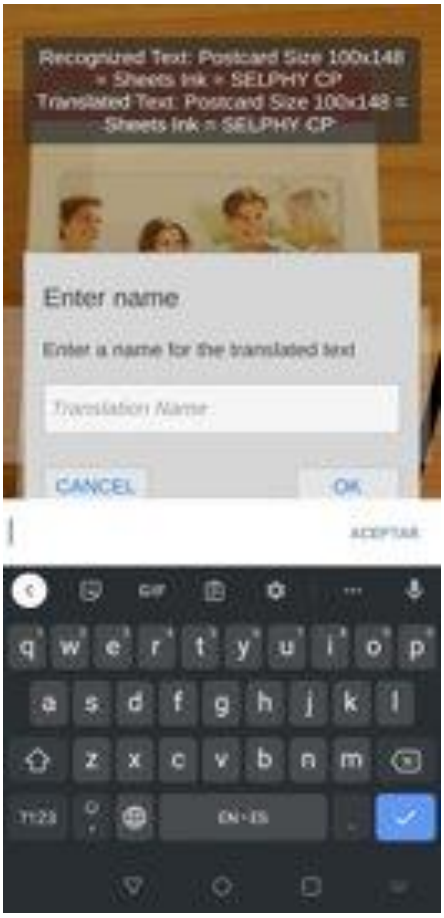
By tapping on the **Start AR session** button, the user is redirected to the Unity session in which the saved anchors try to be resolved.



AR session screen

- The user can finish the session by tapping on the respective button on the bottom left corner.
- The user can start drawing in 3D using the second button from the left. A menu also expands that allows the user to customize the width and color of the drawing, as well as to retrieve past drawings from the same location
- The user can automatically capture, interpret through OCR and translate written text using the third button in the bottom menu.
- The user can measure specific distances using the fourth button from the left. A menu also expands that allows the user to perform further measurement customization, such as multiline measurements, or measurements on planes detected by the AR framework. It also allows the user to retrieve past measurements from the same location.
- The last button from the left allows the user to hide and display the anchors, planes and cloud points from the AR framework.

AR session screen – AR drawing



AR session screen – OCR text recognition and translation

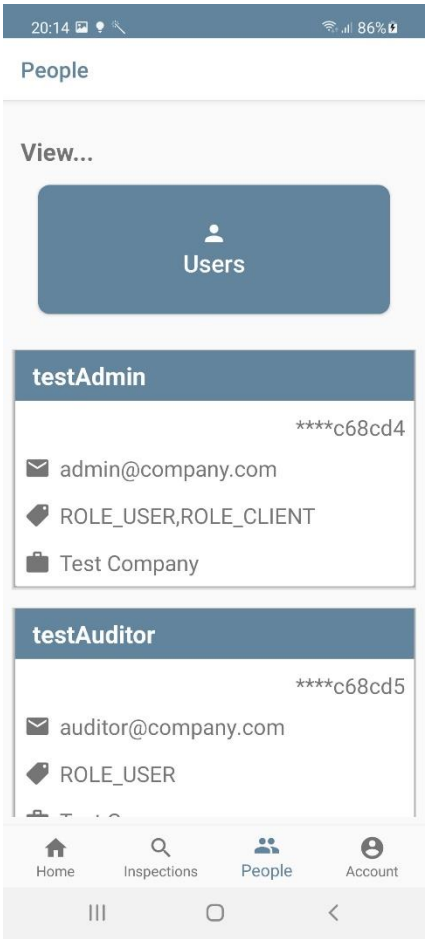
AR session screen – AR measurement

2.3. People

Once the admin user navigates to the **People** menu, he is able to select the **Users** submenu in order to view the list with all the enrolled users as per the below screenshot.

For each user, the following information is displayed:

- Username
- Email Address
- Roles

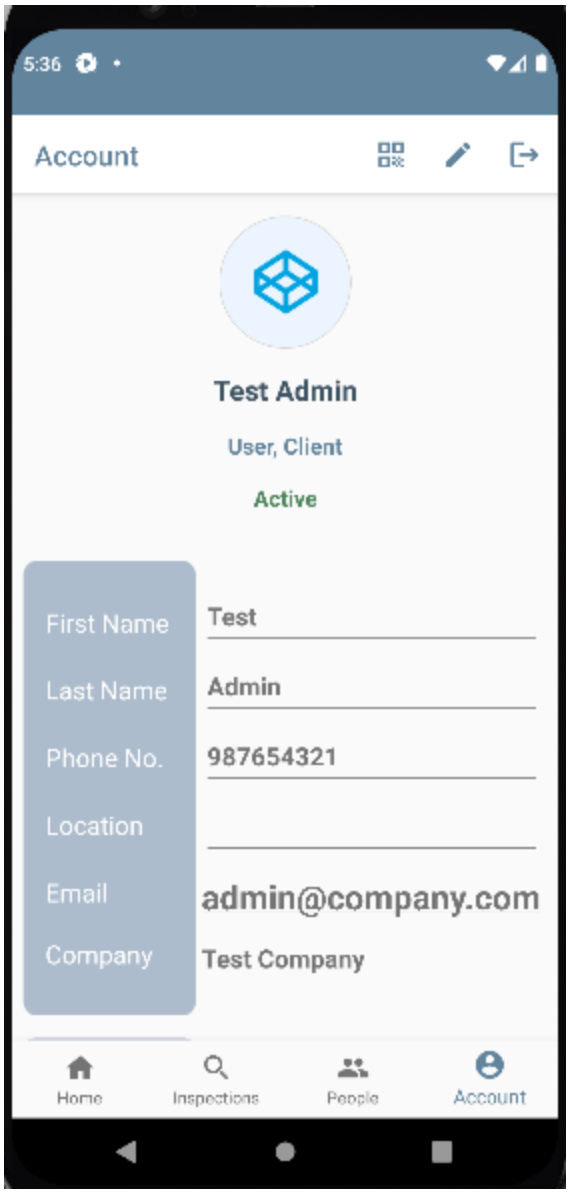


People Screen

2.4. Account

Once the user navigates to the Account screen, the following are available:

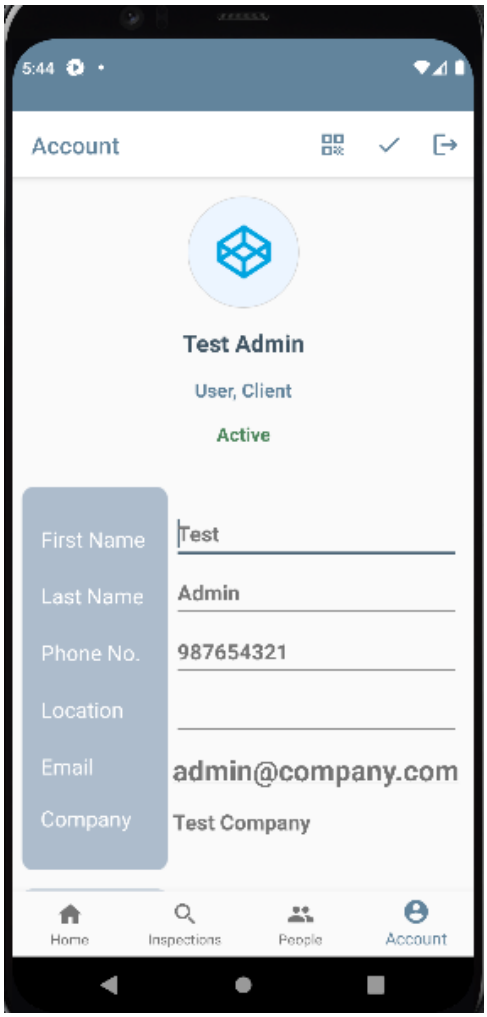
- Account Details
- Edit Account Details
- QR Code
- Logout



Account Screen

The user is able to edit his details by tapping the pencil icon placed on the right top corner, the below fields can be modified:

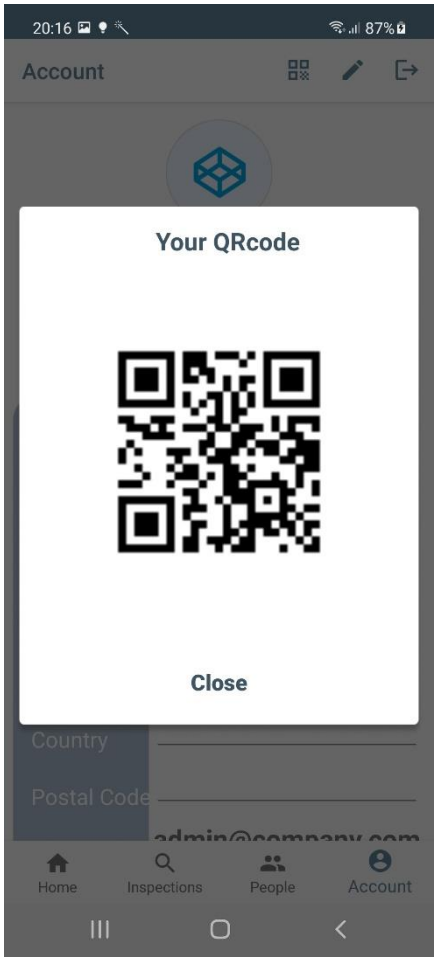
- First Name
- Last Name
- Phone Number
- Location



Edit Account Screen

The modified fields can be saved by tapping the check mark icon on the top right corner.

Once the user taps to view the QR code that can be scanned, he scan it in order he canto login the application of smart glasses.



QR Code screen