INNOVATIVE BLOCKCHAIN TRACEABILITY TECHNOLOGY AND STAKEHOLDERS' ENGAGEMENT STRATEGY FOR BOOSTING SUSTAINABLE SEAFOOD VISIBILITY, SOCIAL ACCEPTANCE AND CONSUMPTION IN EUROPE

DELIVERABLE 3.7 – Set of professional mobile apps and automatic embedded collection solution

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Review History

Version	Date	Reviewer	Short Description of Changes
1	11-Jun-25	Sébastien Gaïde	Review on App distribution and conclusions
2	16-Jun-25	Arnaud THEVENARD	Corrections and revision
3	23-Jun-25	Gonzalo Pérez	Positive review

Document Approval

Name	Role	Action	Date
Carlos Mazorra	Project Coordinator	*Approved*	23-Jun-25

Nature of the deliverable

R	Document, report (excluding the periodic and final reports)	☐
DEM	Demonstrator, pilot, prototype, plan designs	☐
DEC	Websites, patents filing, press & media actions, videos, etc.	☐
DATA	Data sets, microdata, etc.	☐
DMP	Data management plan	☐
Ethics	Deliverables related to ethics issues.	☐
SECURITY	Deliverables related to security issues	☐
Other	Software, technical diagram, algorithms, models, etc.	☒

Dissemination level

PU	Public — fully open (automatically posted online on the Project Results platforms)	☒
SEN	Sensitive — limited under the conditions of the Grant Agreement	☐

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Current seafood traceability tools and services have the potential to take advantage of novel blockchain technologies to obtain a wide range of data making sustainable seafood practices more visible to consumers. Sea2See project will fill in existing seafood traceability gaps through development and demonstration of an innovative end-to-end blockchain traceability model throughout the seafood value chain and professional and consumer applications to increase trust and social acceptance of sustainably fished and farmed seafood.

The project will provide technological solutions to answer the need of a valuable source of data collected throughout the whole seafood value chain, verified, and covering inputs from diverse stakeholders. For that purpose, a specific focus will be put on active commitment of stakeholders and real empowerment of consumers through the implementation of societal and sectoral strategies for co-creation, communication and awareness raising.

The project runs from July 2022 to June 2026. It involves 14 partners from 6 EU countries, and is coordinated by SMARTWATER PLANET SL, Spain.

More information about the project can be found at: http://www.sea2see.eu/

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EXECUTIVE SUMMARY

This document describes the Sea2See Demo App made by Page Up. It covers the four use cases specifically presented.

ACRONYMS AND ABBREVIATIONS

ACRONYM	DEFINITION
SWC	SMARTWATER CLOUD: aquaculture management platform
SSCC	Serial Shipping Container Code
RFID	Radio frequency identification
NFC	Near field communication

PROJECT PARTNERS

#	Partners full name	Short	Country	Website
1	SMARTWATER PLANET SL	SmartWater	ES	www.smartwaterplanet.com
2	TILKAL	Tilkal	FR	www.tilkal.com
3	PAGE UP	PAGE UP	FR	www.pageup.fr
4	SUBMON	SUBMON	ES	www.submon.org
5	CENTRO DE CIENCIAS DO MAR DO ALGARVE	CCMAR	PT	www.ccmar.ualg.pt
6	ASOCIACION NACIONAL DE FABRICANTES DE CONSERVAS DE PESCADOS Y MARISCOS-CENTRO TECNICO NACIONAL DE CONSERVACION DE PRODUCTOS DE LA PESCA	ANFACO	ES	www.anfaco.es
7	IOANNA N.ARGYROU SIMBOULOI EPICHEIR ISIAKIS ANAPTYXIS ETAIREIA PERIORISMENIS EYTHYNIS	NAYS	EL	www.nays.gr
8	SEAENTIA-FOOD, LDA	SEAentia	PT	www.seaentia.com
9	LANDLNG AQUACULTURE BV	LA	NL	www.landingaquaculture.com
10	UNIVERSIDADE DE AVEIRO	UAVR	PT	www.ua.pt

11	VITAGORA POLE	VITAGORA	FR	www.vitagora.com
12	ETHIC OCEAN	Ethic Ocean	FR	www.ethic-ocean.org
13	EVROPROJECT OOD	EP	BG	www.europroject.bg
14	ANP - ASSOCIACAO NATUREZA PORTUGAL	ANP	PT	www.natureza-portugal.org

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1. INTRODUCTION

1.1. CONTEXT

Page Up developed a demo application based on Flutter for Android that demonstrates four use cases covered by the Sea2See project :

- **Octopus :** short and long value chains of the octopus fishery based in Fuzeta (Portugal) managed by the partner CCMAR
- **Sea bream :** value chain of the sea bream produced in offshore aquaculture near Athens (Greece) managed by the partner NAYS
- **Meagre :** value chain of the meagre produced in tank aquaculture in Spain managed by the partner SEAentia
- **Tuna :** value chain of the import / export of transformed Tuna products in Europe managed by the partner SMARTWATER

1.2. SPECIES TRACKED

CODE	SCIENTIFIC NAME	ENGLISH NAME	FAMILY	GROUP
OCC	Octopus vulgaris	Common octopus	Octopodidae	CEPHALOPODA
SBG	Sparus aurata	Gilthead seabream	Sparidae	PERCOIDEI
MGR	Argyrosomus regius	Meagre	Sciaenidae	PERCOIDEI
SKJ	Katsuwonus pelamis	Skipjack tuna	Scombridae	SCOMBROIDEI
YFT	Thunnus albacares	Yellowfin tuna	Scombridae	SCOMBROIDEI
BET	Thunnus obesus	Bigeye tuna	Scombridae	SCOMBROIDEI

2. TECHNICAL ASPECTS

2.1. INTERNATIONALIZATION

This demo application supports multiple languages:

- English
- French
- Spanish
- Greek
- Portuguese

The default language is the Android language settled on the mobile phone running the app. Translations are provided by the Sea2See partners based on the English translation file made by Page Up. Translations can be fine tuned but a new release of the demo app is necessary.

2.2. PAGE UP SDK TO COLLECT AND TRANSMIT DATA

The demo application integrates the Page Up's SDK to manage the data collection and the transmission to the Sea2See Platform.

For more technical information regarding the SDK, please refer to the following document :

- D3.9_SDK Documentation

2.3. BARCODE SCANNING

The mobile application supports two ways of barcode scanning :

ZEBRA TC27 : Rugged Android phone with barcode reader

By using the TC27, the user can directly scan barcodes with the internal reader and the app manages the scanned data to fill the form.

QR Code scanning through camera on any Android mobile phone

Because the application must work on any Android device while scanning barcodes, the application can scan through the camera. The user must click on the "camera" button associated with an input to open the reader.

2.4. RFID SCANNING

The mobile application supports two ways of RFID scanning:

ZEBRA RFD8500: Handheld Bluetooth RFID reader

This reader is a simple and fast way to read RFID labels. It is the best solution of an "inventory" approach of the RFID, or just proceed to simple RFID tests. The pairing process is based on the Android Bluetooth method, then the reader is recognized in the application.

PAGE UP UHX BBOX: Embedded RFID UHF reader

This solution provides multiple ways to deploy a small or wide range of reading RFID thanks to its four RFID antennas inputs. It supports Bluetooth connection to easily connect to the mobile app.

For more technical information regarding the Page Up's UHF BBOX, please refer to the following documents:

- D3.8_Page Up embedded UHF reader Documentation

RFID UHF labels are needed to read assets. The demo application provides an association module to link a batch number with a label number. When the label is read, the application is able to show the associated batch number, meaning it is not necessary to encode the labels.

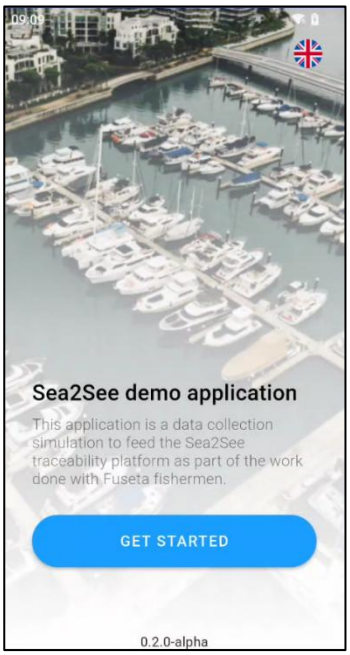
2.5. LABEL PRINTING

ZEBRA ZQ620Plus: Rugged mobile printer

This mobile printer can be connected to any Android device with a simple NFC link to configure the Bluetooth pairing. It can print self-adhesive labels to identify assets with a QR Code of the batch number.

3. MAIN SCREENS

3.1. WELCOME PAGE

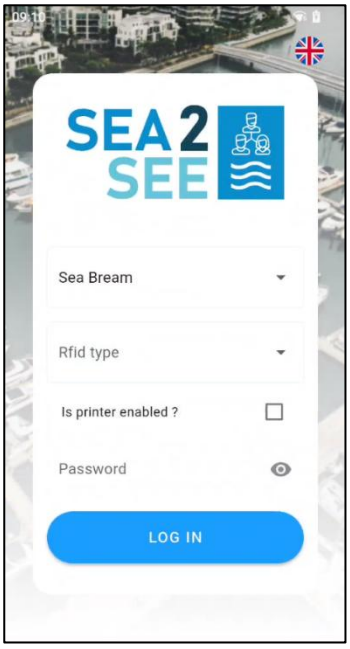


After the application's loading screen, the user arrives on an introduction screen explaining the purpose of the application.

This text can / will evolve in the future to cover all the use cases added after Fuzeta. As mentioned in chapter 2.1, the text can be updated in the translation files in every supported language.

Click on "Get started" to be redirected to the Connection page.

3.2. CONNECTION PAGE



This page lets the user choose the use case:

- CCMAR Fishery: Octopus
  - password: fuzeta
- NAYS Aquaculture: Sea Bream
  - password: athen
- SEAENTIA Aquaculture: Meagre
  - password: madrid
- DIVERSO MARE Importer: Tuna
  - password: lisbon

Then the user can activate some functionalities requiring external Bluetooth hardware:

- Enable RFID by selecting an option (see chapter 2.4)
- Enable printer by checking the box to automatically print label when a new batch is generated

The password is needed to enter in the application.

3.3. MENU

By clicking on the button in the top left, the user can open the menu. On this menu, the user can:

- change language (see chapter 2.1)
- log out to be redirected to the connection page

4. CCMAR - FISHERY USE CASE

4.1. INTRODUCTION TO THE USE CASE

This use case concerns short and long value chains of the octopus fishery based in Fuzeta (Portugal) managed by the partner CCMAR. In both cases, the process is the same :

This use case involves multiple stakeholders :

- **AAPF :** fishers association at Fuzeta managing the sizing & sorting and the auction
- **SOGUIMA :** distributor involved in the long value chain by sending traceability data

Step 1 lets the user declare the boat and the boxes of octopus.

Step 2 lets the user declare the buyer of the box during the auction.

The restitution page generates the Spotlight QR Code of each box and lets the user print that QR code for end consumer delivery in the short value chain case.

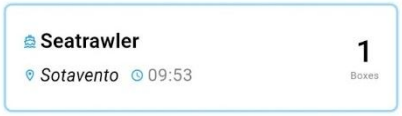
4.2. STEP 1 - LANDING

4.2.1. MAIN PAGE

On this page, the user can see all boat registrations on the selected day. By choosing another day/month, the user can see previous boat registrations.

At the start of a new day, this page is empty and the text “no boat for today yet” is displayed.

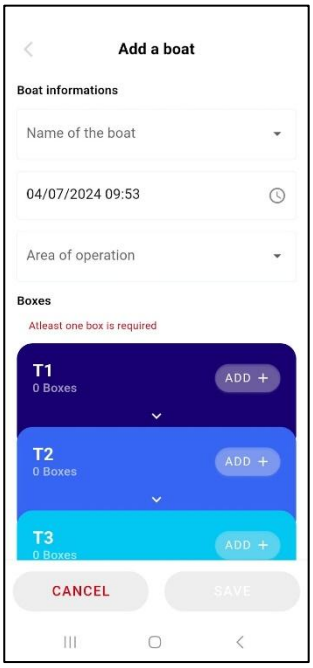
After adding a boat, boat’s information is displayed as on the following card:



the user can click on this card to access all information for this boat and its boxes.

To add a new boat, click on the  button, on the bottom page.

4.2.2. ADD A BOAT



After clicking on the “Add a boat” button, the user will be redirected to the “Add a boat” page. On this page, the user must provide information about the boat :

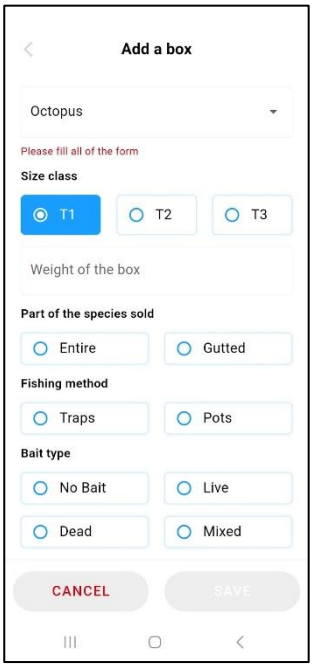
- Name of the boat : dropdown list
- Fishing date : datetime, by default set on the current datetime
- Area of operation : dropdown list

Then, provide information on the associated boxes (at least one box is required). To do so, click on “Add +” to be redirected to the form (*see next chapter*). After filling the form, the user can see all the boxes added on this screen. After adding at least one box, the user can click on the arrow to display boxes information :

When all boxes are registered, the user can save the boat by clicking on “Save”. The user will be redirected to the landing page and the new boat will appear.

Clicking on the “Cancel” button opens a confirmation popup. Confirm to be redirected on the previous page without saving data.

4.2.3. ADD BOX



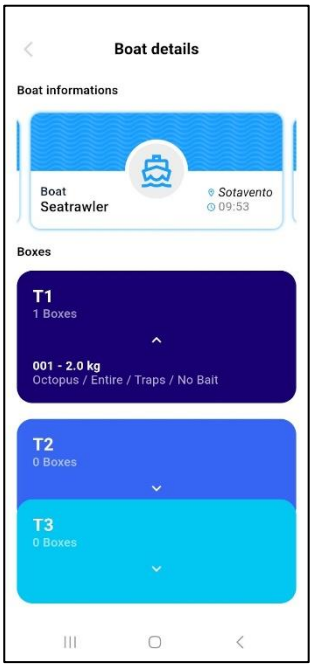
After clicking on the “Add a box” button, the user will be redirected to the box form. All fields on this page are required :

- Specie : dropdown list, automatically filled by the first of the list. The user can select only one.
- Size class : checkbox, checked by default depending on the choice on the previous screen. The user may change it.
- Weight of the box : number, up to 3 decimal places.
- Part of the species : checkbox
- Fishing method : checkbox
- Bait type : checkbox

After completing the form, the user can save the box by clicking on “Save”. The user will be redirected to the boat page and the new box will appear.

Clicking on the “Cancel” button opens a confirmation popup. Then, redirect to the boat page.

4.2.4. BOAT DETAILS



After clicking on the boat card from the landing screen, the user will be redirected on the “Boat details” page. On the page, the user can consult only information. The user can’t edit information. To see box details, click on the arrow of the size class to open details.

4.3. STEP 2 - AUCTION

4.3.1. MAIN AUCTION PAGE

On the bottom of the application, the user can navigate to the "Auction" page. On this page, the user can see all auctions registrations on this day. By choosing another day/month, the user can see previous auctions registrations.

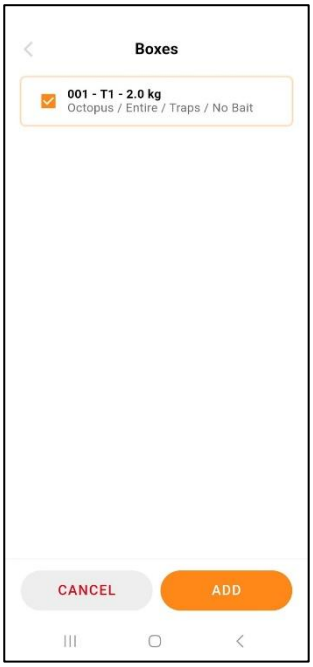
At the start of a new day, this page is empty and the text "no auction for this date" is displayed.

After adding one boat, auction information are displayed :

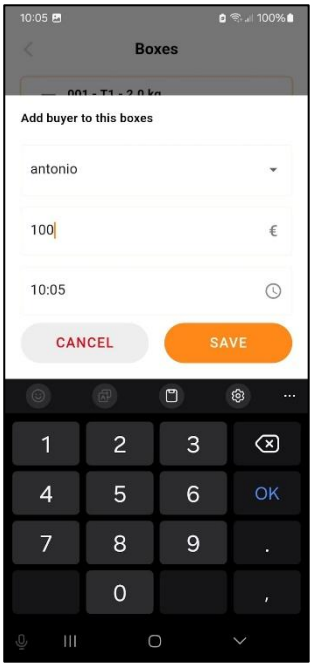
On the bottom of the page, the total auction is displayed.

To add a new auction, click on the  button, on the bottom page.

4.3.2. ADD AN AUCTION



When an auction is initialized, select all previously created boxes concerned by this operation and then click on the "Add" button.



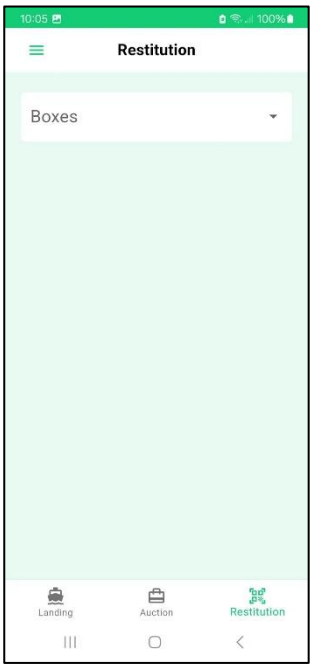
Click on the “Add” button to show the buying information form :

- Buyer : dropdown list
- Selling price : number, decimal accepted
- Time : time, by default set on the current time

To finish, click on the “Save” button to add the auction. All boxes selected cannot be selected anymore for another auction.

Clicking on the “Cancel” button opens a confirmation popup. Then, redirect to the boat page when confirmed.

4.4. RESTITUTION



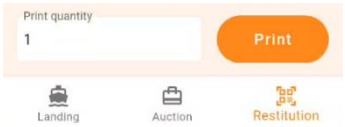
On the bottom of the application, the user can navigate to the "Restitution" page. On this page, the user can select an existing box to get its traceability.

When a box is selected, a QR Code is displayed. The user can click on or scan it with another device to access the traceability (the user will be redirected to a web page).

After the selection of a box, the Spotlight QR Code is generated.
The user has two choices to be redirected on the Spotlight web app :

1. click on the QR Code
2. scan the QR Code with another device

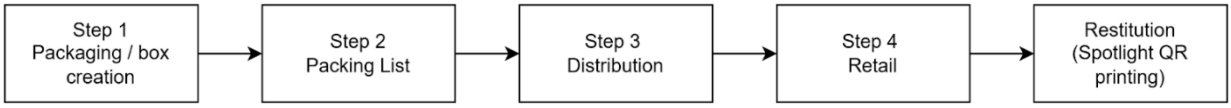
If the printer is enabled, it is possible to print multiple labels with the spotlight QR CODE. Specifics input and button are displayed to specify a quantity and start the printing :



5. GREEK AQUACULTURE USE CASE

5.1. INTRODUCTION TO THE USE CASE

This use case concerns the value chain of the sea bream produced in offshore aquaculture near Athens (Greece) managed by the partner NAYS. The process is the following :

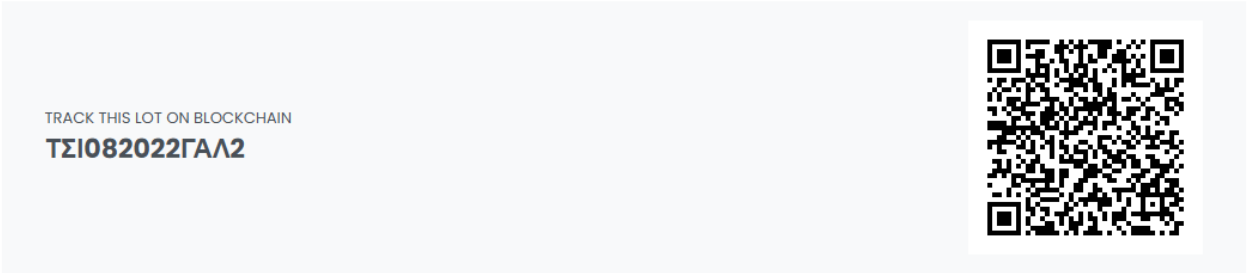


This use case works with the Smartwater Cloud platform managing the fish production.

Multiple stakeholders are also involved in that use case :

- **AGNUNDA :** company producing the fish
- **GENFROCO :** company distributing the fish
- **GENFROCO SALES :** a fake final shop represented by GENFROCO

Step 1 lets the user scan a SWC raw fish batch number and declare the packaging actions made on this raw fish to create a new box batch number of processed fish by the name of AGNUNDA. Below a raw fish batch number example :



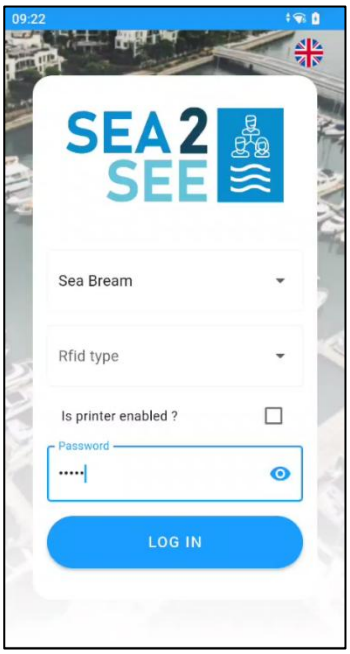
Step 2 lets the user merge multiple boxes into one single SSCC (palet) by the name of GENFROCO. The aim is to be able to manage multiple boxes at once in the next steps.

Step 3 lets the user declare the distribution actions regarding the shipping of the boxes and pallets by GENFROCO to a final destination, GENFROCO SALES.

Step 4 lets the user declare the reception of the goods at the final destination (GENFROCO SALES).

The restitution page generates the Spotlight QR Code of each box.

5.2. CONNECTION



On the connection page, the user can select the Sea Bream use case.

Next, the user can select multiple options :

- **Rfid type :** let the user select the RFID model to use
- **Is printer enabled ? :** if checked, this checkbox allows the user to print the box labels and the Spotlight labels

Finally, click on “Log In” to start the demonstration.

5.3. STEP 1 - PACKAGING

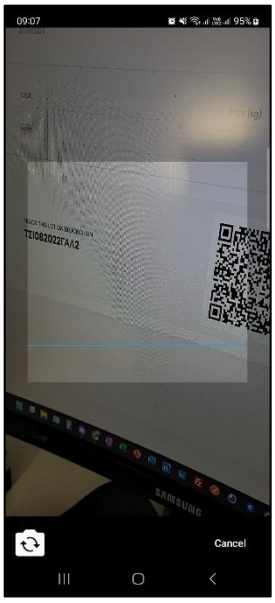
5.3.1. EMPTY PAGE

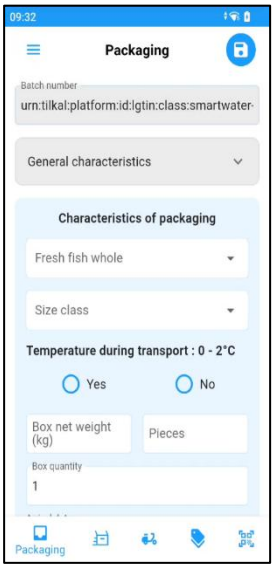
The scan of a raw fish batch is needed to initialize the form.

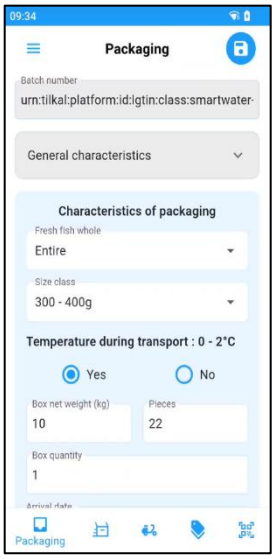
The below QR Code is a demo batch for tests purposes only :

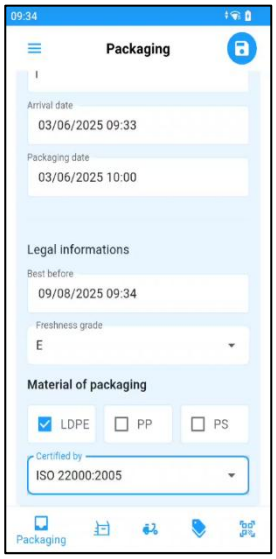
TRACK THIS LOT ON BLOCKCHAIN
ΤΣΙ082022ΓΑΛ2

5.3.2. WORKFLOW







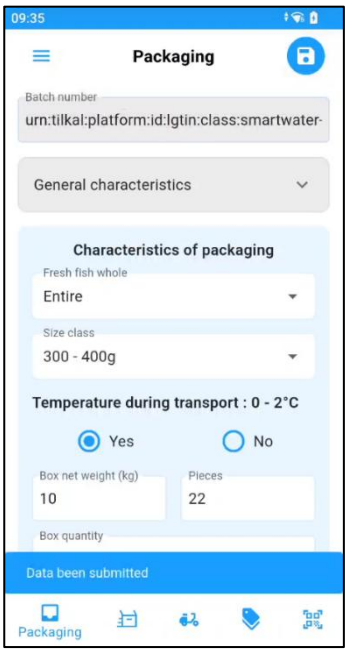


After scanning a batch, the user must provide the following information about the fish:

- Fresh fish whole
  - Dropdown list to select the fresh fish whole .
    - Entire
    - Gutted
- Size class
  - Dropdown list to select the fish size class.
    - 300 - 400g
    - 400 - 600g
    - 600 - 800g
    - 800 - 1000g
    - 1000 - 1500g
- Temperature during transport : 0 - 2°C
  - Radio button (single choice) to indicate the transport temperature and preservation mode for the fish:
    - Yes
    - No
- Box net weight (kg)
  - Numeric input for the box net weight of the fish batch purchased, in kilograms.
- Pieces
  - Numeric input for the pieces, in units.
- Box quantity
  - Numeric input for the box quantity, in units.
- Arrival date
  - Datetime, by default set on the current datetime
- Packaging date
  - Datetime, by default set on the current datetime

- Best before
  - Datetime, by default set on the current datetime
- Freshness grade
  - Dropdown list (hardcoded) to select the freshness grade :
    - E
    - A
    - B
    - Unfit - C
- Material of packaging
  - Checkbox to indicate the material of packaging:
    - LDPE
    - PP
    - PS
- Certified by
  - Dropdown list (hardcoded) to select the certification :
    - ISO 22000:2005

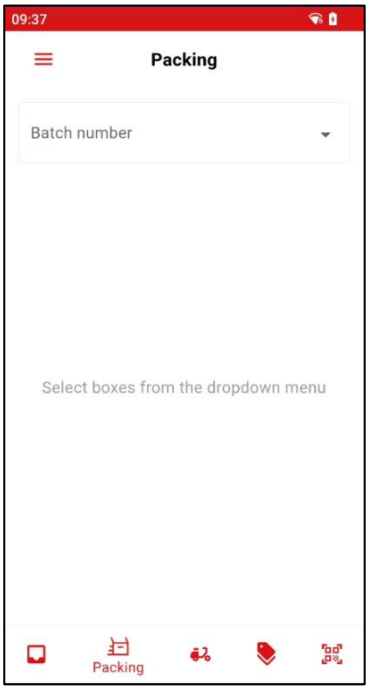
5.3.3. SAVE THE BOX



The user needs to click on the save icon in the top right corner to save their packaging.

5.4. STEP 2 - PACKING LIST

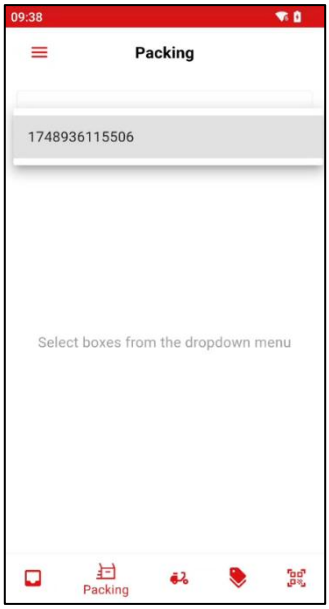
5.4.1. EMPTY PAGE



Empty step to select a batch number that has already been packed.

5.4.2. WORKFLOW

The user has to select the batch he wants to pack and then select the reception date.

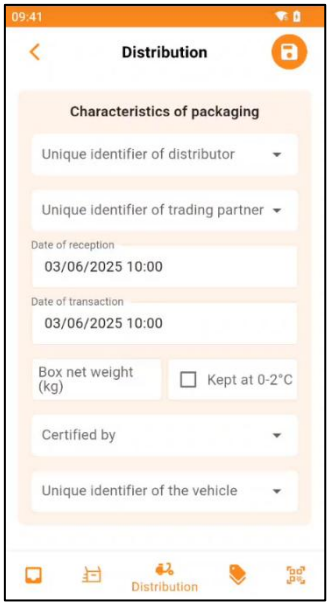


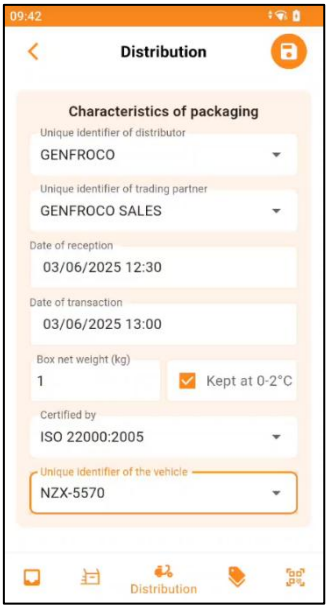
5.5. STEP 3 - DISTRIBUTION

5.5.1. EMPTY PAGE

Empty step where the user has to select the boxes he created earlier in order to display the distribution form.

5.5.2. WORKFLOW



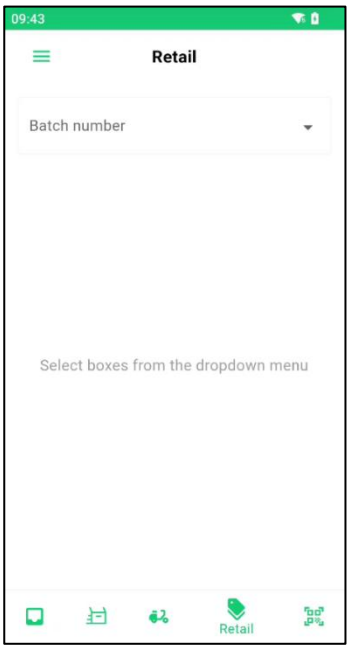


To distribute the fish, the user has to provide some information about the distribution :

- Unique identifier of distributor
  - Dropdown list to select the unique identifier of the distributor.
    - GENFROCO
- Unique identifier of trading partner
  - Dropdown list to select the unique identifier of the trading partner.
    - GENFROCO SALES
- Date of reception
  - Date picker for the reception date and time of the packaging
- Date of transaction
  - Date picker for the transaction date and time of the packaging
- Box net weight (kg)
  - Numeric input for the box net weight of the fish batch purchased, in kilograms.
- Kept at 0-2°C
  - Checkbox to indicate the storage temperature and preservation mode for the fish:
    - Kept at 0-2°C
- Certified by
  - Dropdown list (hardcoded) to select the certification :
    - ISO 22000:2005
- Unique identifier of the vehicle
  - Dropdown list to select the unique identifier of the vehicle.
    - NZX-5570
    - IBW-4531
    - AAA-1234

5.6. STEP 4 - RETAIL

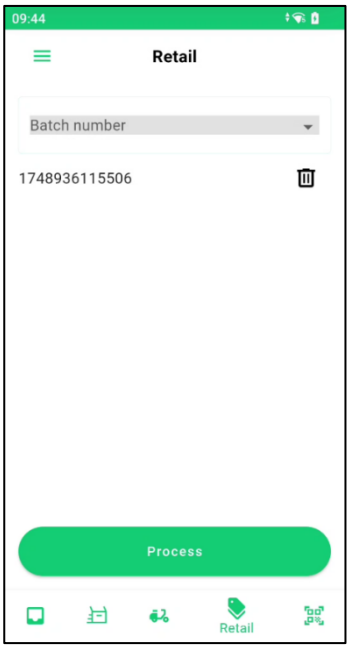
5.6.1. EMPTY PAGE



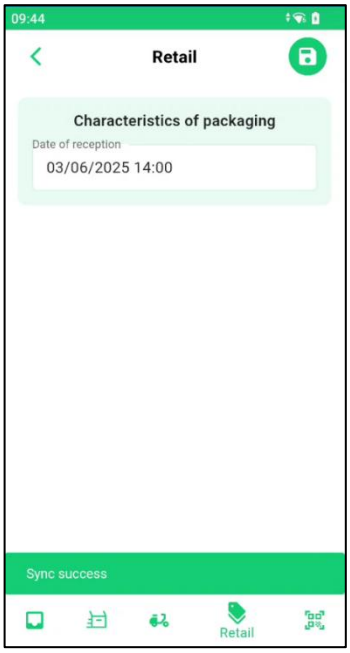
Empty screen where the user can select a batch to show the retail form.

5.6.2. WORKFLOW

The user selects the batch he wants to retail and selects the reception date.



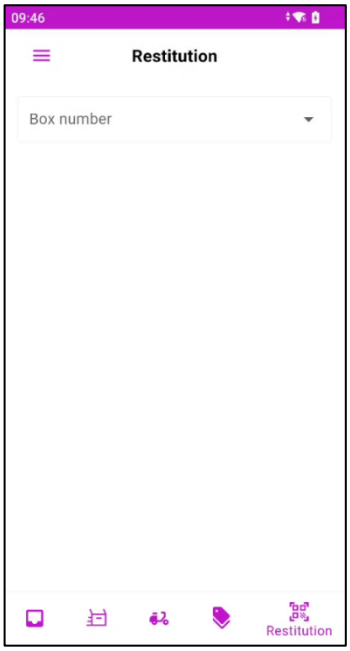
5.6.3. SAVE THE RETAIL



The user needs to click the save icon in the top right corner to save their retail operation.

5.7. RESTITUTION

5.7.1. EMPTY PAGE

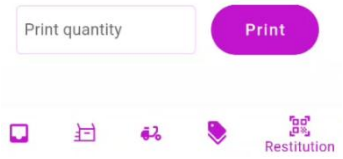


Empty screen where the user can select a batch to display the QR code for the spotlight.

5.7.2. QR CODE

When the user selects a batch, a QR code is displayed, giving access to all the fish information.

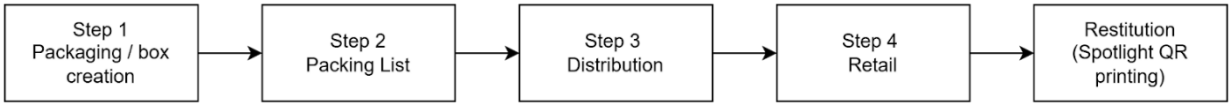
If the printer is enabled, it is possible to print multiple labels with the spotlight QR CODE. Specifics input and button are displayed to specify a quantity and start the printing :



6. SEAENTIA AQUACULTURE : MEAGRE

6.1.INTRODUCTION TO THE USE CASE

This use case concerns the value chain of the meagre produced in tank aquaculture in Spain managed by the partner SEAentia. The process is the same as the sea bream :

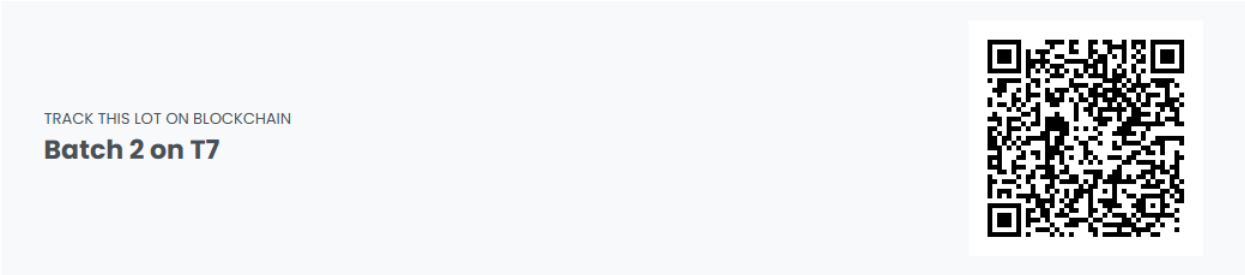


This use case also works with the Smartwater Cloud platform managing the fish production.

Multiple stakeholders are involved in that use case, but all data are managed by the name of SEAentia :

- **FILMAR :** company processing the raw fish into final product
- **Restaurante SARDINHA :** restaurant buying and serving the processed fish

Step 1 lets the user scan a SWC raw fish batch number and declare the packaging actions made on this raw fish to create a new box batch number of processed fish by FILMAR. Below a raw fish batch number example :



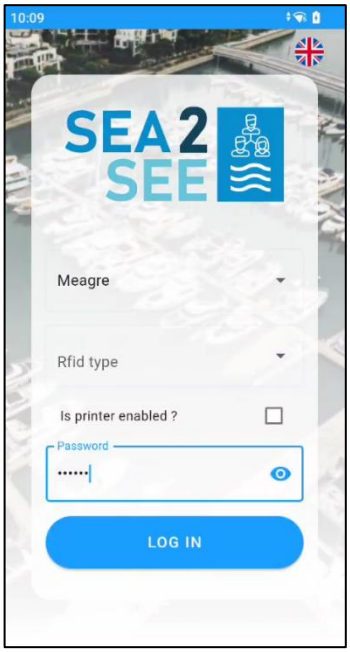
Step 2 lets the user merge multiple boxes into one single SSCC (palet) by FILMAR. The aim is to be able to manage multiple boxes at once in the next steps.

Step 3 lets the user declare the distribution actions regarding the shipping of the boxes and pallets by GENFROCO to a final destination by Filmar.

Step 4 lets the user declare the reception of the goods at the final client, Restaurante SARDINHA.

The restitution page generates the Spotlight QR Code of each box.

6.2. CONNECTION



On the connection page, the user can select the Meagre use case.

Next, the user can select multiple options :

- **Rfid type :** let the user select the RFID model to use
- **Is printer enabled ? :** if checked, this checkbox allows the user to print the box labels and the Spotlight labels

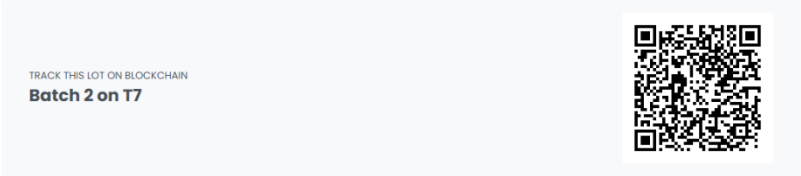
Finally, click on “Log In” to start the demonstration.

6.3. STEP 1 - PACKING

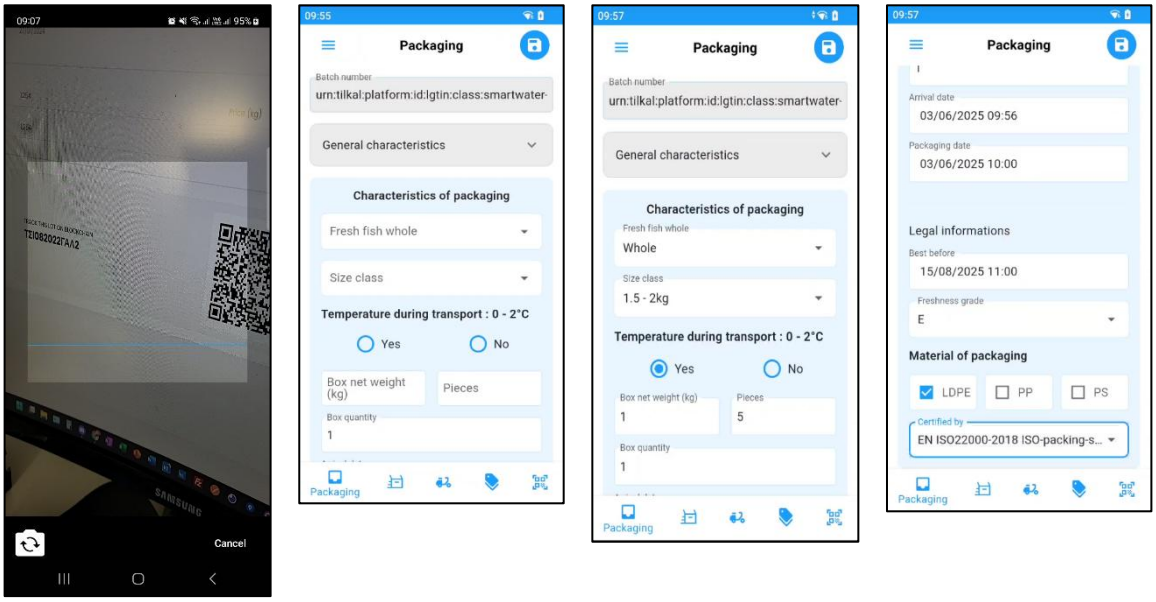
6.3.1. EMPTY PAGE

The scan of a raw fish batch is needed to initialize the form.

The below QR Code is a demo batch for tests purposes only :



6.3.2. WORKFLOW

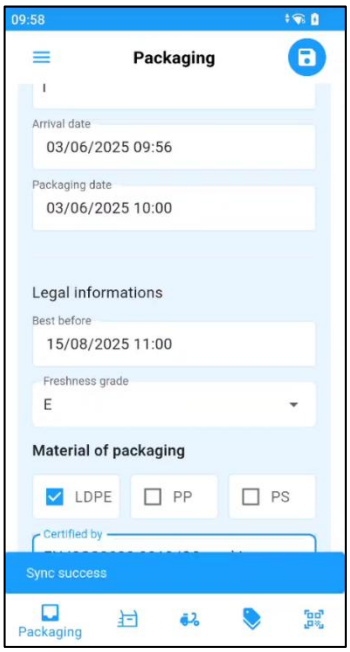


After scanning a batch, the user must provide the following information about the fish:

- Fresh fish whole
  - Dropdown list to select the fresh fish whole .
    - Whole
    - Drawn
    - Dresses
    - Steak/Slices
    - Fillet
- Size class
  - Dropdown list to select the fish size class.
    - 1.5 - 2kg
    - 2 - 2.5kg
    - 2.5 - 3kg
    - > 3kg
- Temperature during transport : 0 - 2°C
  - Radio button (single choice) to indicate the transport temperature and preservation mode for the fish:
    - Yes
    - No
- Box net weight (kg)
  - Numeric input for the box net weight of the fish batch purchased, in kilograms.
- Pieces
  - Numeric input for the pieces, in units.
- Box quantity
  - Numeric input for the box quantity, in units.
- Arrival date

    - Datetime, by default set on the current datetime
- Packaging date
    - Datetime, by default set on the current datetime
- Best before
    - Datetime, by default set on the current datetime
- Freshness grade
    - Dropdown list (hardcoded) to select the freshness grade :
        - E
        - A
        - B
        - Unfit - C
- Material of packaging
    - Checkbox to indicate the material of packaging:
        - LDPE
        - PP
        - PS
- Certified by
    - Dropdown list (hardcoded) to select the certification :
        - EN ISO22000-2018 ISO-packing-seaentia-2024.pdf

6.3.3. SAVE THE BOX



The user needs to click on the save icon in the top right corner to save their packaging.

6.4. STEP 2 - PACKING LIST

6.4.1. EMPTY PAGE

Empty step to select a batch number that has already been packed.

6.4.2. WORKFLOW

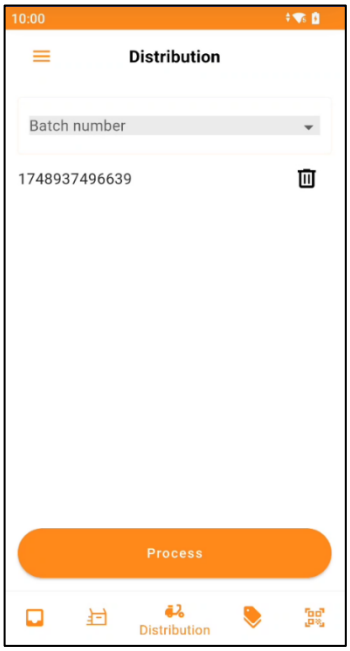
The user has to select the batch he wants to pack and then select the reception date. After that, he can pack the batch.

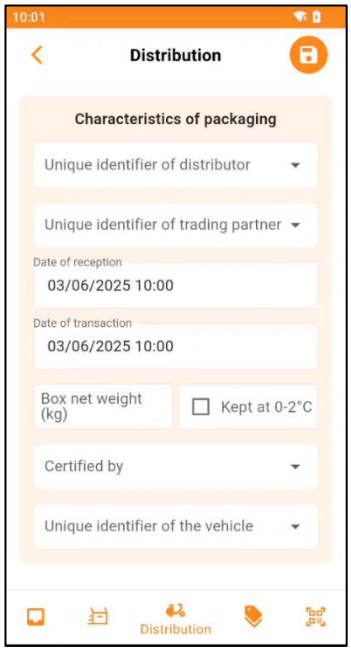
6.5. STEP 3 - DISTRIBUTION

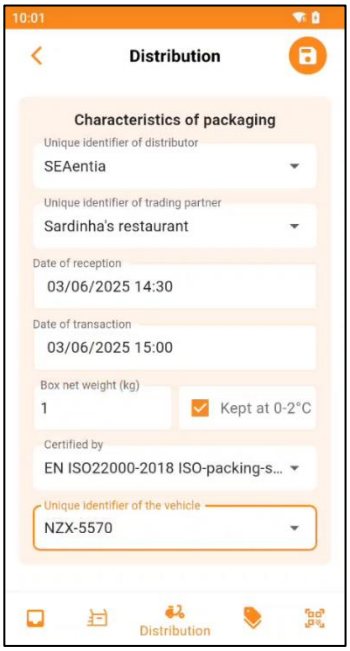
6.5.1. EMPTY PAGE

Empty step where the user has to select the boxes he created earlier in order to distribute them.

6.5.2. WORKFLOW





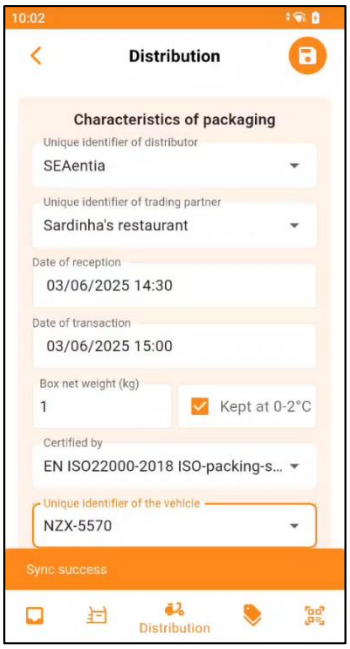


To distribute the fish, the user have to provide some information about the distribution :

- Unique identifier of distributor

    - Dropdown list to select the unique identifier of the distributor.
        - SEAentia
- Unique identifier of trading partner
    - Dropdown list to select the unique identifier of the trading partner.
        - Sardinha's restaurant
- Date of reception
    - Date picker for the reception date and time of the packaging
- Date of transaction
    - Date picker for the transaction date and time of the packaging
- Box net weight (kg)
    - Numeric input for the box net weight of the fish batch purchased, in kilograms.
- Kept at 0-2°C
    - Checkbox to indicate the storage temperature and preservation mode for the fish:
        - Kept at 0-2°C
- Certified by
    - Dropdown list (hardcoded) to select the certification :
        - EN ISO22000-2018 ISO-packing-seaentia-2024.pdf
- Unique identifier of the vehicle
    - Dropdown list to select the unique identifier of the vehicle.
        - NZX-5570
        - IBW-4531
        - AAA-1234

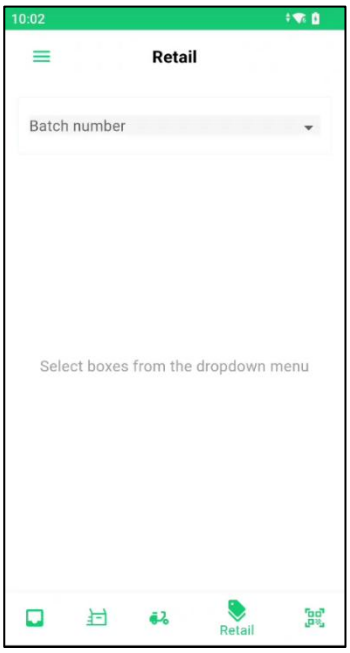
6.5.3. SAVE THE DISTRIBUTION



The user needs to click on the save icon in the top right corner to save their distribution.

6.6. STEP 4 - RETAIL

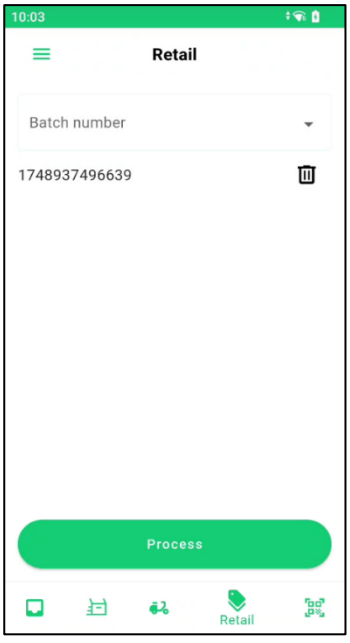
6.6.1. EMPTY PAGE



Empty screen where the user can select a batch to retail.

6.6.2. WORKFLOW

The user selects the batch he wants to retail and selects the reception date.

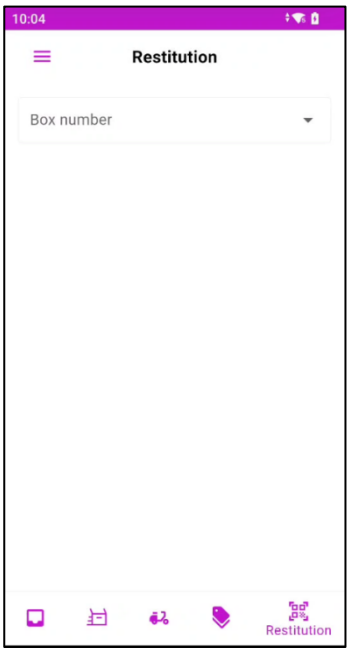


6.6.3. SAVE THE RETAIL

The user needs to click the save icon in the top right corner to save their retail operation.

6.7. RESTITUTION

6.7.1. EMPTY PAGE



Empty screen where the user can select a batch to display the QR code for the spotlight.

6.7.1. QR CODE

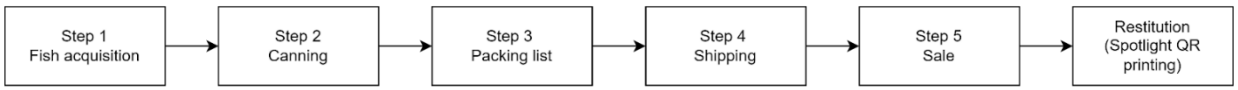
When the user selects a batch, a QR code is displayed, giving access to all the fish information.

If the printer is enabled, it is possible to print multiple labels with the spotlight QR CODE. Specifics input and button are displayed to specify a quantity and start the printing :

7. DIVERSOMARE : TUNA

7.1.INTRODUCTION TO THE USE CASE

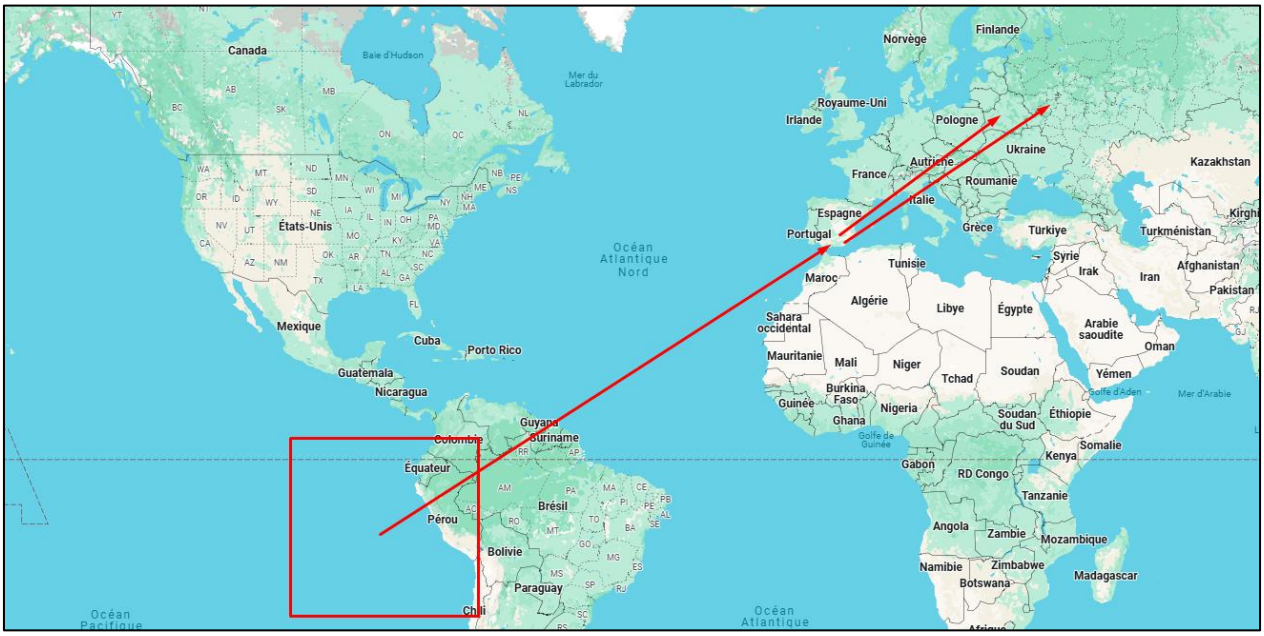
This use case concerns the value chain of the import / export of transformed Tuna products in Europe managed by the partner SMARTWATER. Below the process of the demonstrator :



Multiple stakeholders are involved in that use case, but all data are managed by the name of DIVERSO MARE:

- **DIVERSO MARE :** Spanish company importing the fish and selling a processed product to final clients
- **ASISERVY :** Spanish company processing the raw fish for DIVERSO MARE
- **MSC, MAERSK & Hapag-Lloyd :** different transporter
- **FISHFOOD** : final market in Minsk, Belarus
- **GORODSKOY SUPERMARKET** : final market in Moscow, Russia

Below a representative of the import / export journey :



Step 1 lets the user scan the imported raw fish batch to create it in the S2S Platform and declare the fishing data and associated certificates.

Step 2 lets the user declare the canning actions on raw fish and create new batches of processed products with associated certificates.

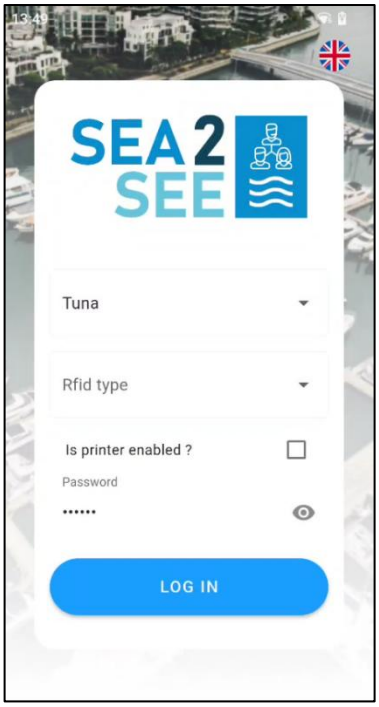
Step 3 lets the user insert can batches into a container associated with a packing list.

Step 4 lets the user declare the distribution actions with the transporter and locations.

Step 5 lets the user declare the reception of the goods at the final distributor.

The restitution page generates the Spotlight QR Code of each box.

7.2. CONNECTION



On the connection page, the user can select the Tuna use case.

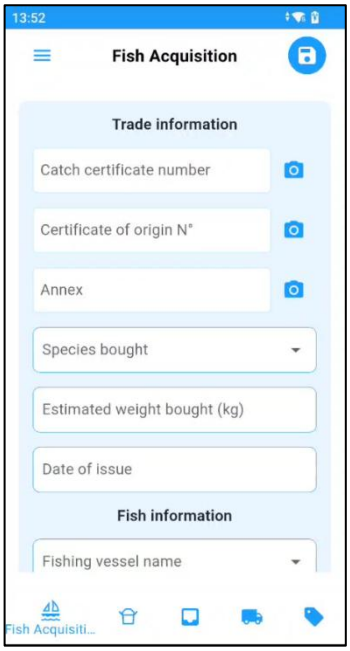
Next, the user can select multiple options :

- **Rfid type :** let the user select the RFID model to use
- **Is printer enabled ? :** if checked, this checkbox allows the user to print the box labels and the Spotlight labels

Finally, click on “Log In” to start the demonstration.

7.3. STEP 1 - FISH ACQUISITION

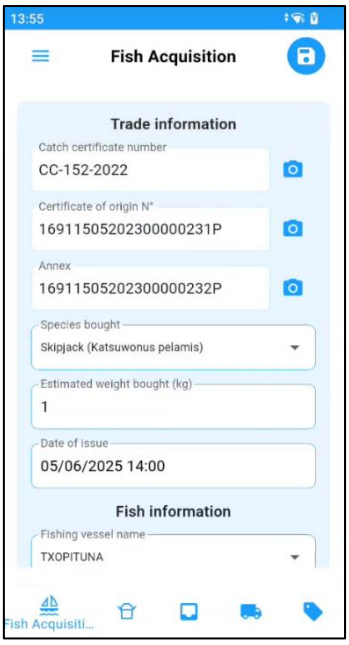
7.3.1. EMPTY PAGE

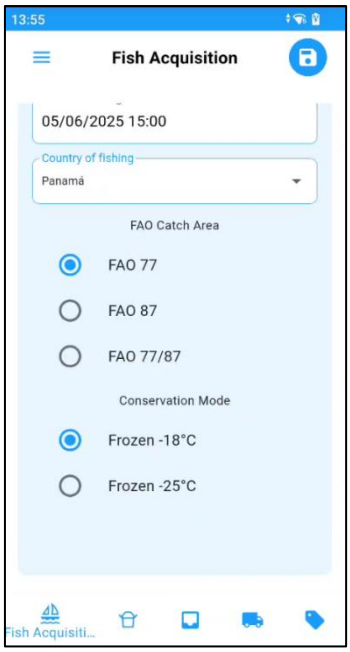


This screen allows the user to declare the raw fish bought and input information on the fish.

7.3.2. WORKFLOW

The user scans the catch certificate and provides information about the trade and the fish.





Trade Information

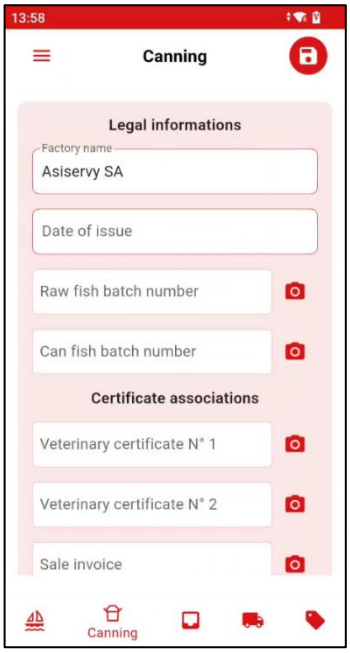
- Catch certificate N°
  - This field is for entering or scanning the catch certificate number.
- Certificate of origin N°
  - This field is for entering or scanning the certificate of origin number.
- Annex N°
  - This field is for entering or scanning the annex number.
- Species bought (Dropdown list) :
  - Select the species of fish purchased from a list:
    - Skipjack (Katsuwonus pelamis)
    - Yellowfin (Thunnus albacares)
    - Patudo (Thunnus obesus)
- Estimated weight bought (Kg)
  - Numeric input for the estimated weight of the fish batch purchased, in kilograms.
- Date of issue
  - Date picker for the issuance date and time of the catch certificate or trade document.

Fish information

- Fishing vessel name / ID
  - Dropdown list to select the name or ID of the fishing vessel that caught the fish.
- Date of landing
  - Date picker to enter the date and time the fish was landed at the port.
- Country of fishing
  - Dropdown list (hardcoded) to select the country where the fish was caught:
    - Panamá
    - Colombia
    - Ecuador
    - Perú
- FAO catch area
  - Radio button (single choice) to indicate the FAO fishing area where the fish was caught:
    - FAO 77
    - FAO 87
    - FAO 77 & FAO 87
- Conservation mode
  - Radio button (single choice) to indicate the storage temperature and preservation mode for the fish:
    - Frozen at -18°C
    - Frozen at -25°C

7.4. STEP 2 - CANNING

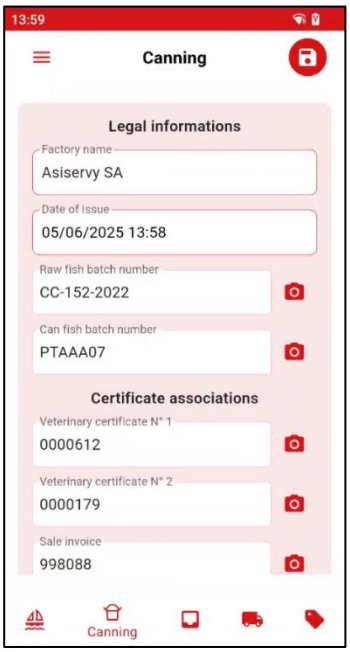
7.4.1. EMPTY PAGE

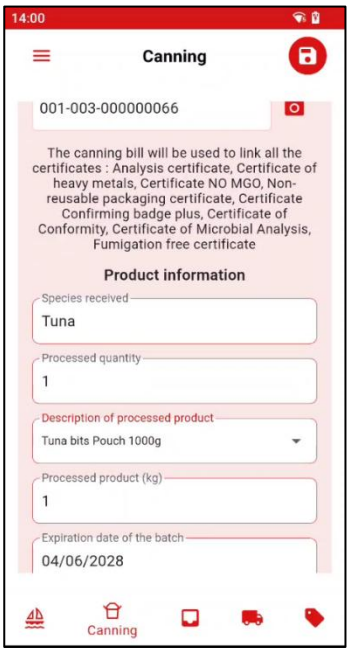


This screen allows the user to declare the creation of a processed product from a raw fish batch, and declare all the required certificates.

7.4.2. WORKFLOW

To declare the transformation of the fish, the user must provide some legal information, certificates and product information :





Legal information

- Factory name (label)
  - This field shows the name of the factory which is always the same.
- Date of issue
  - Date picker to enter the date and time the fish has been canned.
- Raw fish batch number
  - This field is for entering or scanning the raw fish batch number.
- Can batch N°
  - This field is for entering or scanning the can batch number.

Certificates association

- Veterinary certificate number 1
  - This field is for entering or scanning the veterinary certificate number 1.
- Veterinary certificate number 2
  - This field is for entering or scanning the veterinary certificate number 2.
- Sale Invoice N°
  - This field is for entering or scanning the sale invoice number.
- Canning bill N°
  - This field is for entering or scanning the canning bill number.
  - The canning bill number will be used to link the following certificates :
    - Analysis certificate
    - Certificate of heavy metals
    - Certificate NO MGO
    - Non-reusable packaging certificate
    - Certificate Confirming badge plus
    - Certificate of Conformity
    - Certificate of Microbial Analysis
    - Fumigation free certificate

Product information

- Species received (label)
  - This field shows the species we received, which is Tuna.
- Quantity processed (Kg)
  - Numeric input for the quantity of raw fish processed, in kilograms.
- Description of processed product:
  - Dropdown list to select the type of processed product :
    - Can 170g Tuna chunks
    - Can 170g Tuna bits
    - Can 1000g Tuna chunks
    - Can 1000g Tuna bits
- Processed product (Kg)
  - Numeric input for the quantity of processed product, in kilograms.

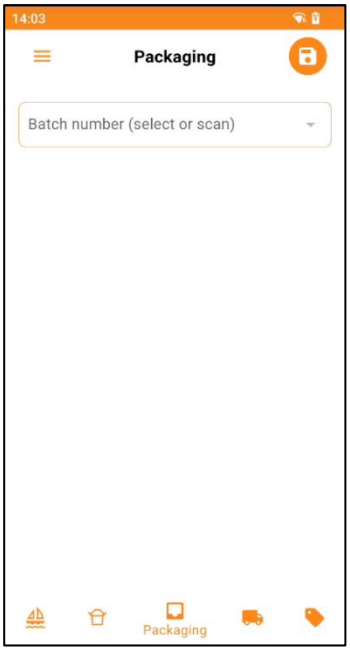
- Expiration date of the batch (need the formula)
    - This field indicates the expiration date of the processed product based on the formula (1460 for can and 1095 for pouch).

7.5. STEP 3 - PACKING LIST

This step is split in two screens :

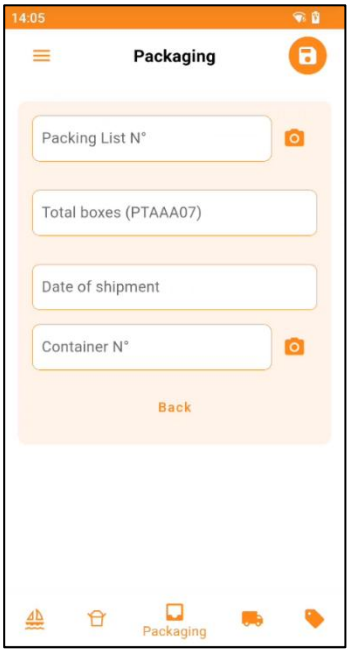
1. Select or scan multiple can batches
2. Declare the packing information for the selected raw fish batches

7.5.1. BATCH LIST



On this screen, the user has to scan all the batch numbers he wants to pack in a container.

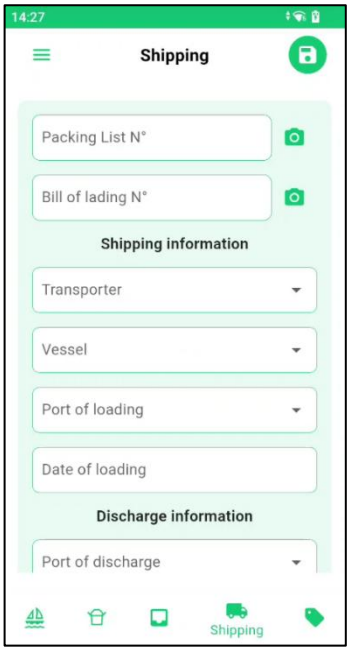
7.5.2. WORKFLOW



- Packing List N°
  - This field is for entering or scanning the packing list number.
- Can batch - Total boxes (unit)
  - Dynamically generated field for each can batch scanned
  - Numeric input for the quantity of boxes processed, in units.
- Date of shipment
  - Date picker to enter the date and time of shipment.
- Container N°
  - This field is for entering or scanning the container number.

7.6. STEP 4 - SHIPPING

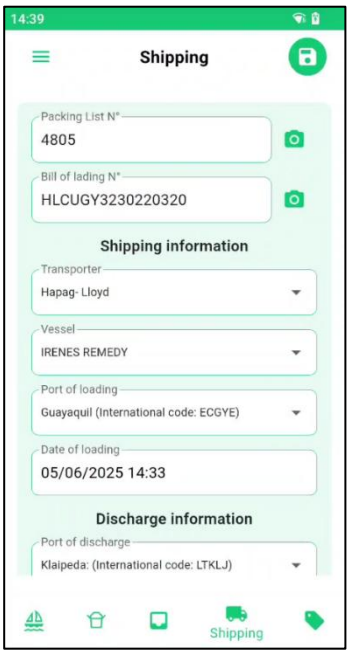
7.6.1 EMPTY PAGE

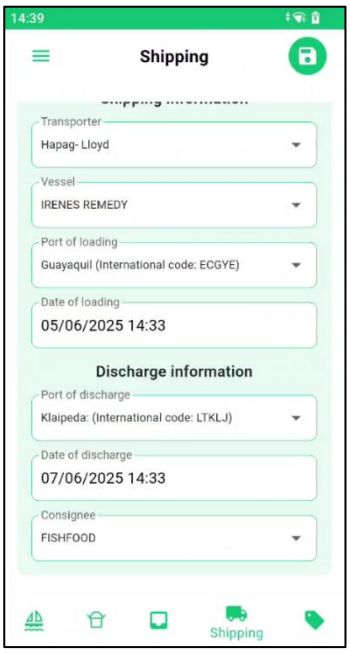


The location of that step should be the port of loading.

7.6.2. WORKFLOW

This screen is used to enter shipping and discharge information.





Packing Information

- Packing List N°
  - Field to enter or scan the packing list number for the shipment. When scanning a packing list, the user need to retrieve the containers associated with that packing list.
- Bill of lading N°
  - Field to enter or scan the bill of lading number for the shipment.

Shipping Information

- Transporter
  - Dropdown list to choose the transporter company :
    - MSC
    - MAERSK
    - Hapag-Lloyd
- Vessel
  - Dropdown list to choose the shipping vessel transporting the goods, depending on the Transporter selected :
    - IRENES REMEDY (linked to Hapag-Lloyd)
    - MAERSK BULAN (linked to MAERSK)
    - MSC VAISHNAVI (linked to MSC)
    - MSC AMALFI (linked to MSC)
- Port of Loading
  - Dropdown list to select the port where the shipment is loaded onto the vessel :
    - Guayaquil, Ecuador
    - Posorja, Ecuador
- Date of loading
  - Date picker to select the date and time the shipment is loaded onto the ship.

Discharge information

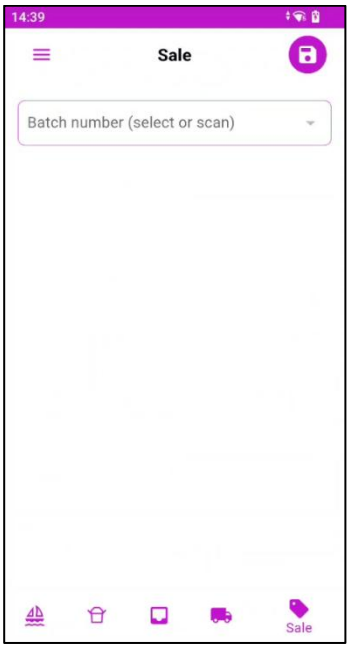
- Port of Discharge
  - Dropdown list to select the port where the goods will be unloaded :
    - Klaipeda, Lithuania
    - Saint Petersburg, Russia
- Date of discharge
  - Date picker to select the date and time the goods will be discharged at the destination port.
- Consignee
  - Dropdown list to select the consignee of the goods :
    - FISHFOOD, LLC, Minsk, Belarus
    - GORODSKOY SUPERMARKET, Moscow, Russia

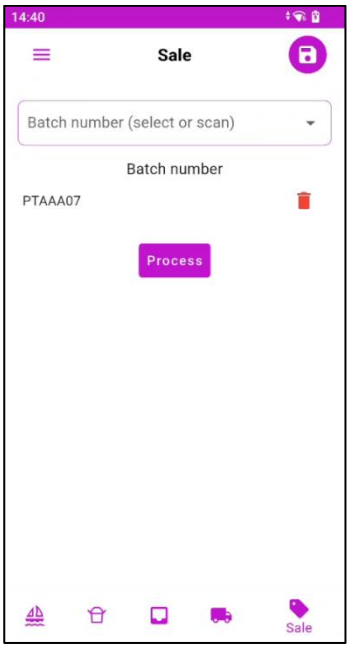
7.7. STEP 5 - SALE

This step is split in two screens :

1. Select or scan multiple can batches
2. Declare the sales information for the selected can batches

7.7.1. BATCH LIST





On this screen, the user has to scan all the batch numbers he wants to manage.

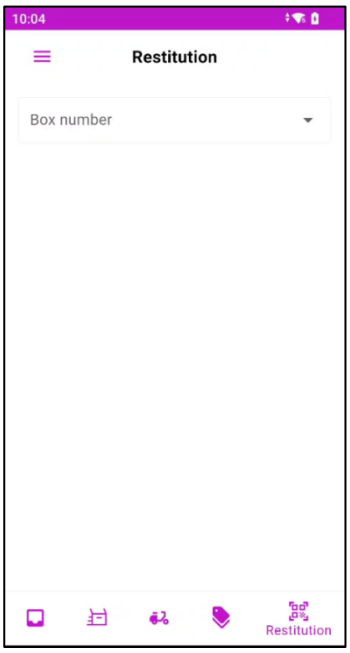
7.7.2. WORKLOW

The user must fill the form to declare the reception of the goods by the final client.

- Client
  - Dropdown list to select the client or customer to whom the sale is made.
- Date of sale
  - Date picker to select the date and time the sale transaction was completed.
- Date of service
  - Date picker to select the date and time the product or service was delivered or provided to the client.

7.8. RESTITUTION

7.8.1. EMPTY PAGE



Empty screen where the user can select a batch to display the QR code for the spotlight.

7.8.2. QR CODE

When the user selects a batch, a QR code is displayed, giving access to all the fish information.

If the printer is enabled, it is possible to print multiple labels with the spotlight QR CODE. Specifics input and button are displayed to specify a quantity and start the printing :

8. DISTRIBUTION METHOD

8.1. MANUAL INSTALLATION WITH THE APK

The main way to share the demonstration application is to send a download link of the APK to stakeholders.

An APK is an Android Package used to install applications on an Android mobile device.

The next sub-chapters describe how to install an application from an APK.

DOWNLOAD THE APK FILE

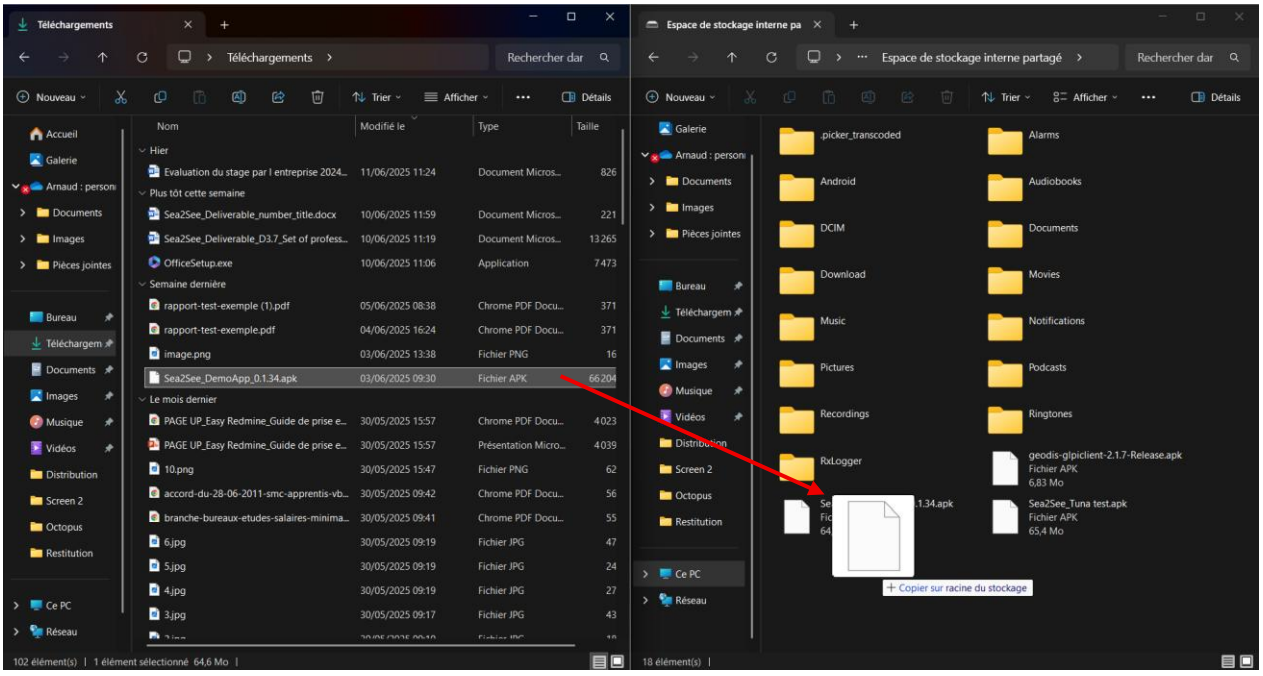
Click on the shared link to download the APK file of the Sea2See application. The .APK file should be in your "Downloads" folder.

TRANSFER THE APK FILE

Step 1: Connect your mobile device to your computer using a USB cable.

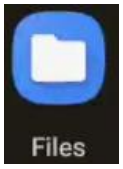
Step 2: Grant permission for the computer to access your mobile device's files.

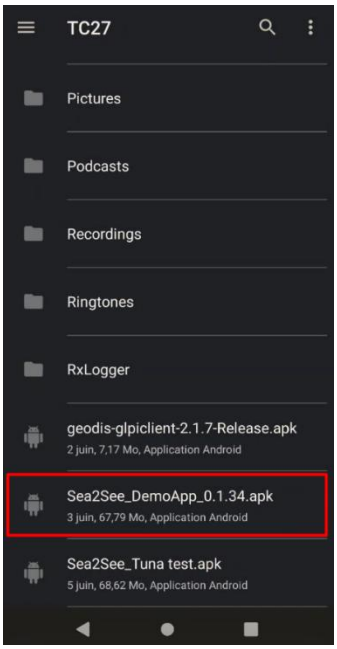
Step 3: Transfer the APK file from your computer to your device’s internal storage by dragging and dropping it from your “Downloads” folder to your mobile device.



INSTALL THE APP

On your mobile device, open your File Manager app (the name or icon of this app may vary depending on your device).





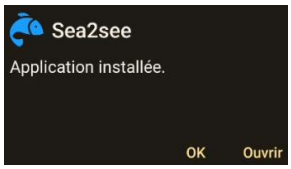
Navigate to the folder where you transferred the APK file (usually at the root of the internal storage).

Tap on the file to start the installation, then tap “Install”.

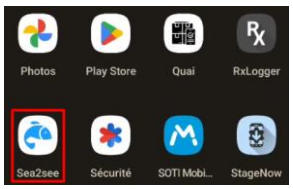
If Android asks to verify the APK, you can skip it.

OPEN THE INSTALLED APP

Once installed, tap “Open” from the installation screen.



Or find the app in your App Drawer and launch it from there.



8.2. PROFESSIONAL DEVICES DEPLOYED BY PAGE UP

Page Up provides three licenses for the MDM SOTI MOBICONTROL deployed on three ZEBRA TC27 devices delivered to CCMAR, NAYS and SEAentia.

To know more about SOTI MOBICONTROL, please visit the official website:

https://soti.net/products/soti-mobicontrol/

The demonstration application is deployed on the three devices through a SOTI MOBICONTROL profile letting Page Up easily share updates on the connected devices.

Page Up is also able to remotely control the devices to help stakeholders during their operations in the field.

8.3. POSSIBLE DISTRIBUTION WITH ANDROID PLAY STORE

Because the application is dedicated to professional stakeholders, the demonstration application is not yet available in the Android Play Store.

I could be a future option to simplify the distribution of the APK and avoid APK sharing, but the application can't be used by anyone because a password is necessary.

Because Google politics is more and more severe, we do think that a lot of work and communication with Google will be needed to get the publication approbation because of the limited usage of the application.

Below is a list of the different justificative pieces that Google may ask:

- Description of the demonstration application usage
- Description of the collected data usage
- Video presenting the application
- Use cases password to let Google test the application
- Confidentiality link of the S2S project

Even with these justificative pieces, Google may refuse the application on the Android Play Store for diverse reasons.

9. CONCLUSION

As a result of the 3 years of work with the technical partners and the different use cases stakeholders, Page Up developed an application to demonstrate four different data collection use cases using different embedded technologies (barcode & RFID).

Stakeholders will be able to collect real traceability data on the field with a user-friendly interface to feed the Sea2See Platform & the final consumer application made by Tilkal.

That application offers a holistic solution along the value chain, and it is the last piece of the Sea2See suite of tools, letting the project enter a new phase: demonstration, data collection and data analysis.

Page Up will continue the fine tuning of the application based on the stakeholder's feedback, and updates will be shared through the different methods provided.