

**BrighterBins**

The world's simplest, cheapest, stick and go solution for municipal garbage.

USER MANUAL

ANALYTICS PLATFORM

DOCUMENT VERSION	DATE	DESCRIPTION	EDITOR
1.0.1	01/12/2019	User Manual for Brighterbins Analytics Platform	SmartEnds



SMARTENDS

Vlasgaardstraat 52, 9000 Gent, Belgium

Table of Contents

Introduction	4
User Sign In	5
User Sign Up	6
Sign up process	6
Navigation and Side Bar	8
Overview / Dashboard	9
Devices	12
Devices Listing	13
Search Bar	14
Map Area	16
Edit Device	17
Time Series	19
Routing	21
Platform Revision History	24

Introduction

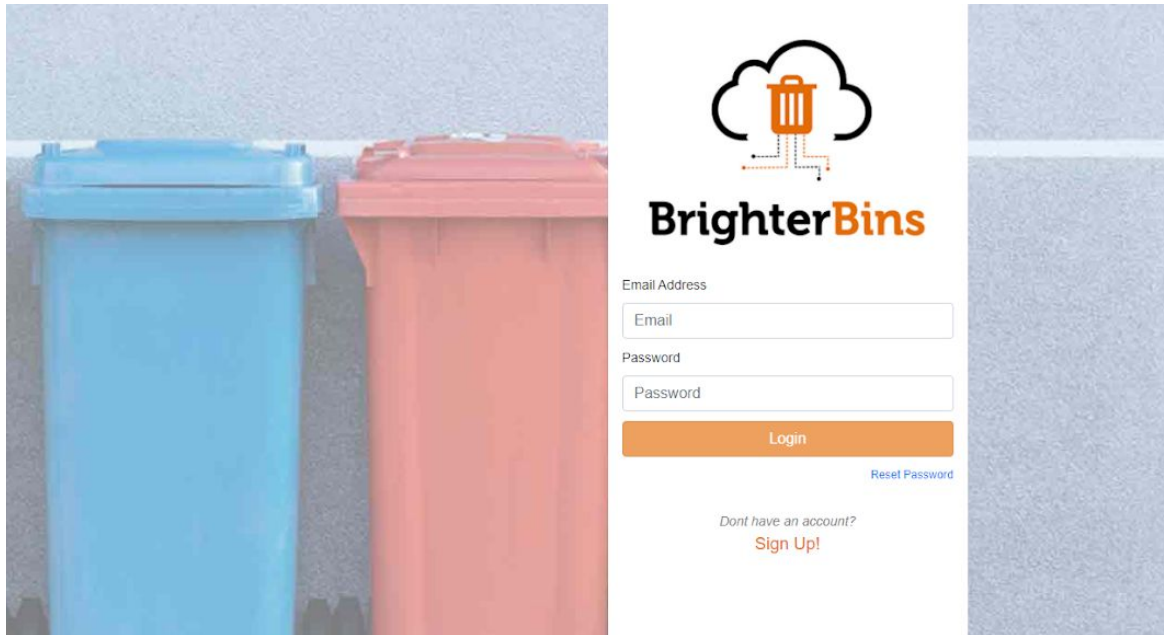
Brighterbins Analytics Platform brings connected, high availability and scalable solution specifically designed for urban waste management. It helps accelerate the business decisions necessary to optimize the waste management tasks.

This document is for the end users to help use the platform in an easy and efficient manner

User Sign In

To sign in open the URL: "analytics.brighterbins.com"

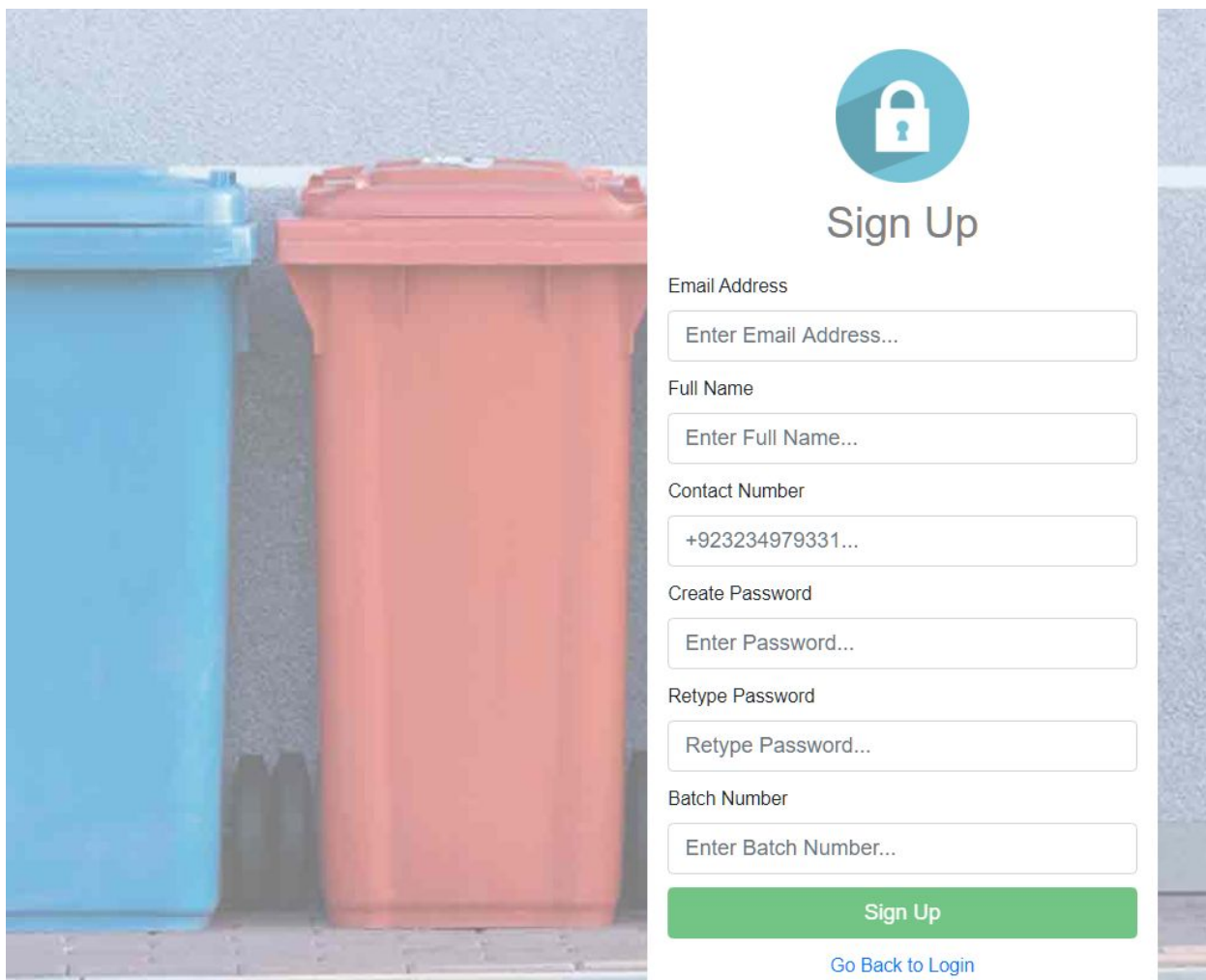
When you land on the platform, you must login in.



(Image - S1)

Enter your email and password, click Login to enter. If you are a new user, click 'Sign Up!' for which you will need a customer key.

User Sign Up



The image shows a 'Sign Up' form overlaid on a background of two large recycling bins, one blue and one red. The form is titled 'Sign Up' with a padlock icon. It contains the following fields and labels:

- Email Address: Enter Email Address...
- Full Name: Enter Full Name...
- Contact Number: +923234979331...
- Create Password: Enter Password...
- Retype Password: Retype Password...
- Batch Number: Enter Batch Number...
- Sign Up (green button)
- Go Back to Login (blue link)

(Image - S2)

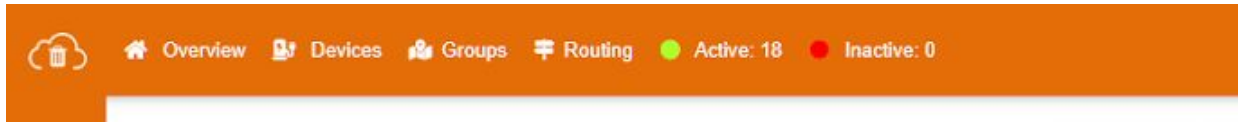
Sign up process

1. Enter your details (email, full name, contact number (+32123123123), password, retype password)
2. You will need a secret 'batch number' key to sign up. If you have not received the batch number/secret key, please contact our customer support at support@brighterbins.com. This should be kept secret as someone can use this to sign up and enter the platform. Share this key only with trusted users, or sign up on their behalf.
3. Click 'Sign Up', if there are no errors you will be sent a verification email.
4. Open your inbox and you will see a verify email. If you don't see it in your inbox, check the junk / spam folder. Open this email and click the verification link.

5. After clicking the verification link in the email, you can now simply sign in as a normal user.

Navigation and Sidebar

The top navigation bar is displayed on every page's top. On the left side you see page links, and a count of the total active and inactive devices:



(Image N-1A)

And on the right:



(Image N-1B)

Right shows ur local timezone, your time, you company name, and links to settings page and logout.

The sidebar is also always displayed on each page:

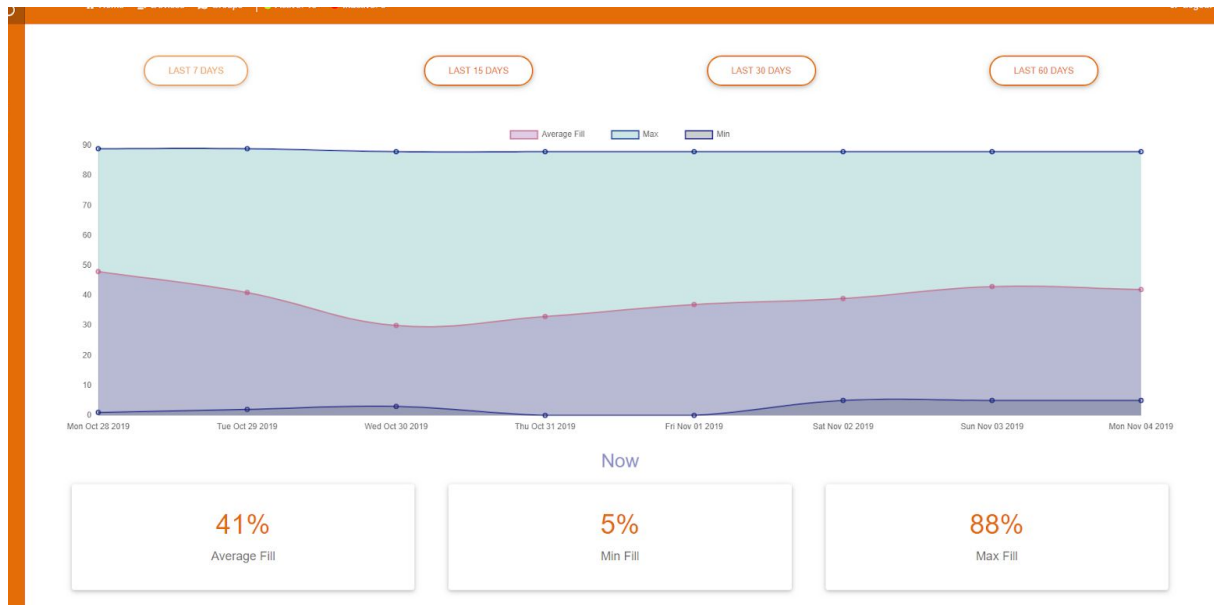


The sidebar is shown on the left side of every page. Click on the icons to open the respective page. Placing the pointer on an icon will also display a tooltip, e.g, "Devices" (second icon)

(Image N2)

Overview / Dashboard

This overview page presents organization wide analytics for the fill level of waste bins. This page contains critical information to drive business decisions in accelerated manner



(Image - O1)

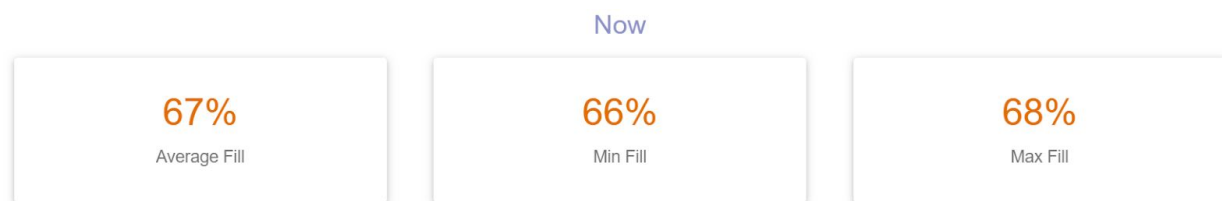
Let's consider the graph and the buttons above it:



(Image - O2)

1	The top row consists of four buttons, “Last 7 Days”, “Last 15 Days”, “Last 30 Days”, “Last 60 Days”. Click one of these buttons will draw the graph with device messages from now up to the last x days.
2	The rectangle shows the keys for the graph below. There are 3 colored area lines, for average fill for the day, max fill for the day, min fill for the day. On the y-axis is %age fill level, and the x-axis shows increasing dates from left to right. There’s one data point per day.
3	The uppermost graph is the max fill level for a given day. This, for any given day, is the maximum fill level seen from all devices. For example, if on the 25th the maximum fill levels for four devices were [25, 50, 83, 60], then 83 is the max fill level for the 25th
4	The middle graph is for average fill level for that day. This is a measure of how filled up, on average, the entire collection of devices was on a given day. For example, consider four devices each of which have five messages per day. On the 25th day, the average fill level would be the sum of all fill levels divided by number of messages (20 messages for 4 devices in this case). This is a percentage value.
5	The lower graph is the min fill level detected for a given day. This is similar to the first graph, only that this shows the lowest fill level seen on a given day instead of the maximum level.

Scrolling down, you’ll see further analytics.



(Image - O3)

Under ‘Now’, the following information is available inside the cards:

1. **Average Fill Level:** This is the current average fill level for all the devices. This reflects the recent most average fill level.
2. **Min Fill:** This is the current lowest fill level. Some bin out of all the devices has this fill level, and this is the lowest out of all the bins currently.
3. **Max Fill:** This is the current maximum fill level. Some bin out of all the devices has this fill level, and this is the highest out of all the bins currently.



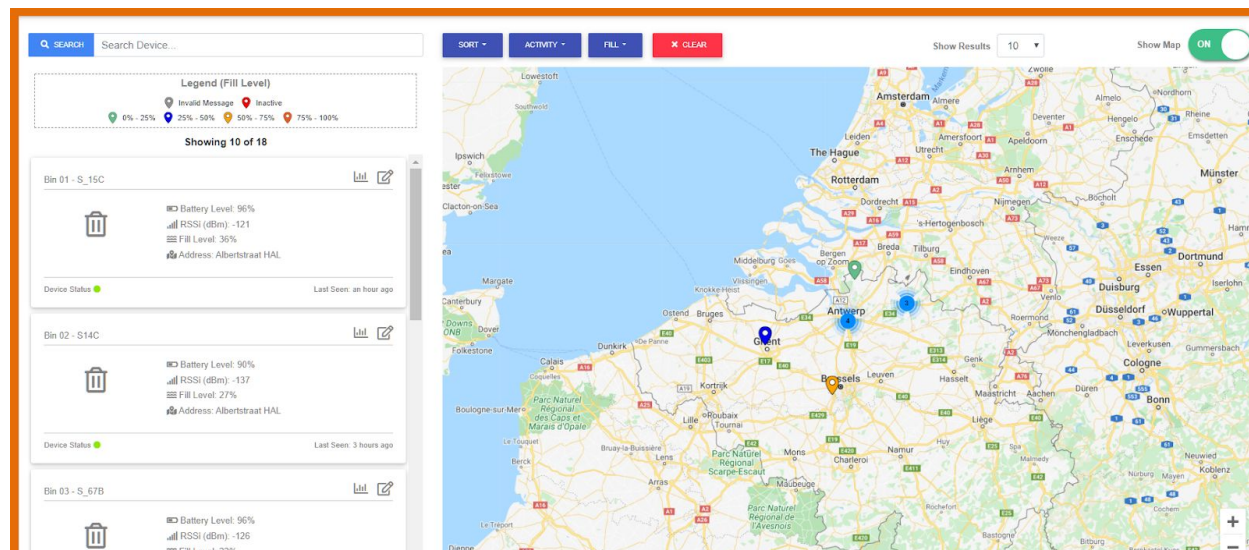
(Image - O4)

Under 'Past 24 Hours', we have:

1. **Average Fill:** This is the average fill level value over the past 24 hours. This is calculated by averaging fill level messages over the past 24 hours, for all devices included.
2. **Min Fill:** This is the lowest fill level seen over the past 24 hours.
3. **Max Fill:** This is the highest fill level seen over the past 24 hours.

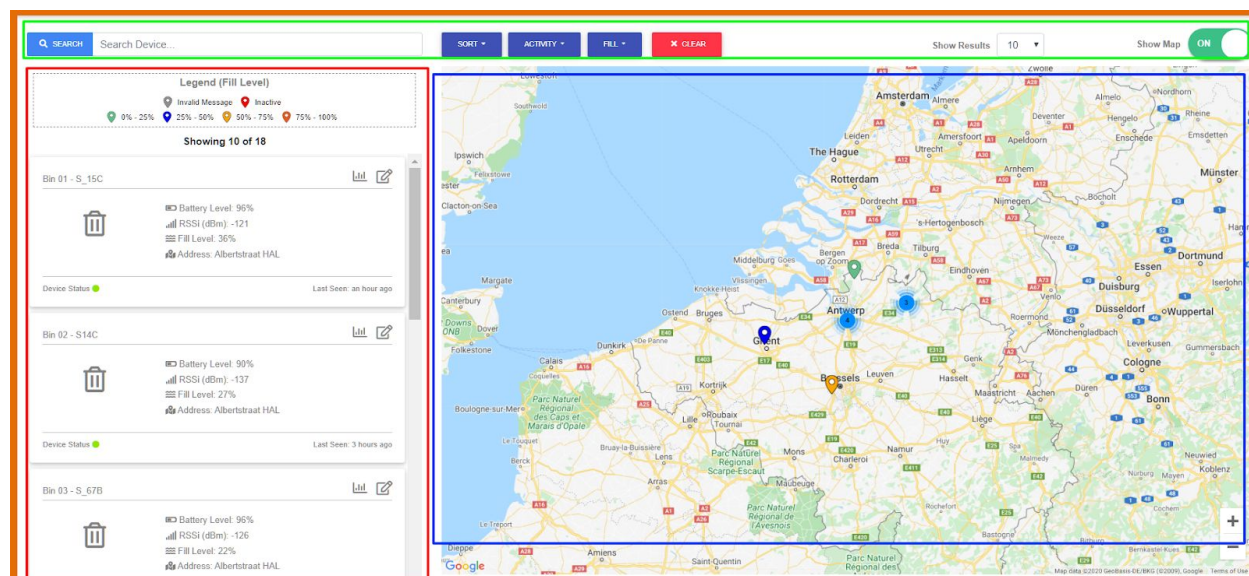
Devices

From the side bar, click the 'Devices' icon to open the devices page. You can also open this page by clicking 'Devices' in the top bar. You will land on this page:



(Image - D1)

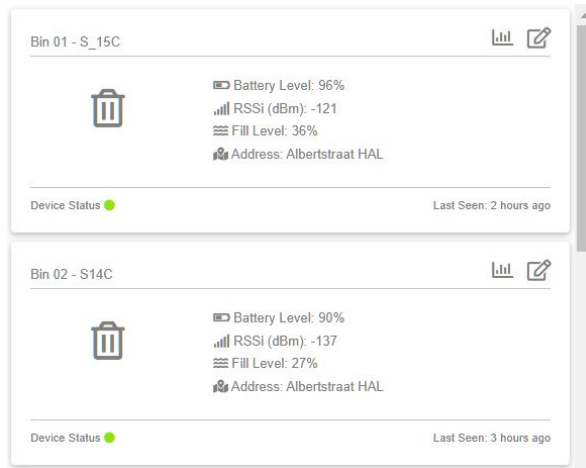
This page consists of a search bar on the top, a devices listing column with device cards, and a map area with devices marked on it. These three sections are highlighted below in green, red and blue rectangles respectively:



(Image - D2)

Let's look at these one by one.

Devices Listing

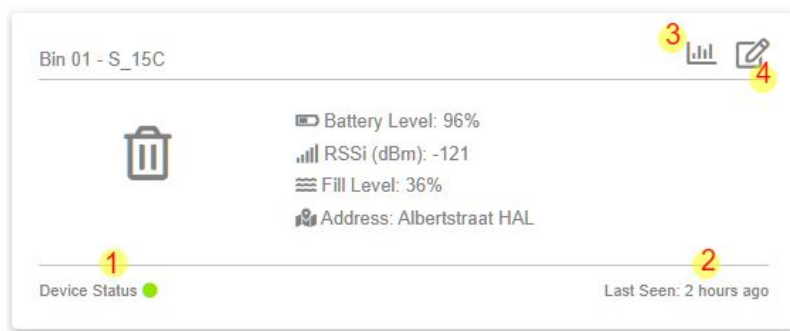


(Image D-3)

This is the section marked inside the red rectangle on image D2, shown left. This area is basically a column containing all devices, with a bunch of information per device. You can see that each device's information is shown on its "card", which will be discussed more in a bit.

The scroll bar will let you scroll down through the list, until you hit a "More" button. Click that to show more devices in the list.

This is what a device card looks like close up:



(Image - D4)

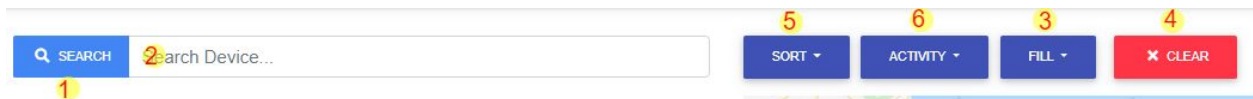
As you can see, this card shows the device's name, battery level, signal strength (RSSI), and a percentage fill level.

1	Device status indicator.  shows the device is active.  shows the device is inactive.
2	"Last Seen" shows elapsed time since the last message from the device.
3	The bar chart icon, numbered (3) is a time series icon. Click this to view this device's data drawn on a line graph. Details of the time series page are discussed in another section of this manual.

4	Edit device button. This let's you modify a device's name, depth (bin height) or location coordinates. This feature will be discussed in detail under a separate section.
---	---

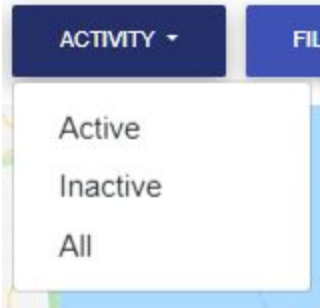
Search Bar

This is the top section marked by the green rectangle. On the left side of the searchbar you see the following:



(Image - D5)

1, 2	If you want to search for some devices or a particular device, you can type in a device name or ID in the text input numbered (1). Type in your search text in (1) and then click the blue search button on the left, numbered (2). This will display devices that match your search text. Tip: You don't have to search for a name exactly, for example, searching for "park" will display all devices that are named "park" or contain the text "park", such as "park bin 01", "park bin main hall", etc. You can also search for device IDs.
3	This is the fill level filter. Click on it and open up like a dropdown menu. You'll see four ranges here, as shown below:  (Image - D6) Click on one of these ranges to display only those devices whose fill level falls in that range. Tip: If you select a fill level (3), and enter some search text in (1) and then click the search button (2), you'll get a combined result. For example, search for "park" with fill

	level 0%-25% will display only those devices that include “park” in their name and are between a fill level of 0% to 25%;
4	Clear button will clear only filters you have applied (any filter, sort, active, fill), i.e, it will clear out the search text and the selected fill level if any and display the complete list of devices.
5	 (Image - D7) Sort results based on fill value.
6	 (Image D-8) Filter devices based on activity. A device that has transmitted at least once in 24 hours.

On the right side of the search bar, you see the following:



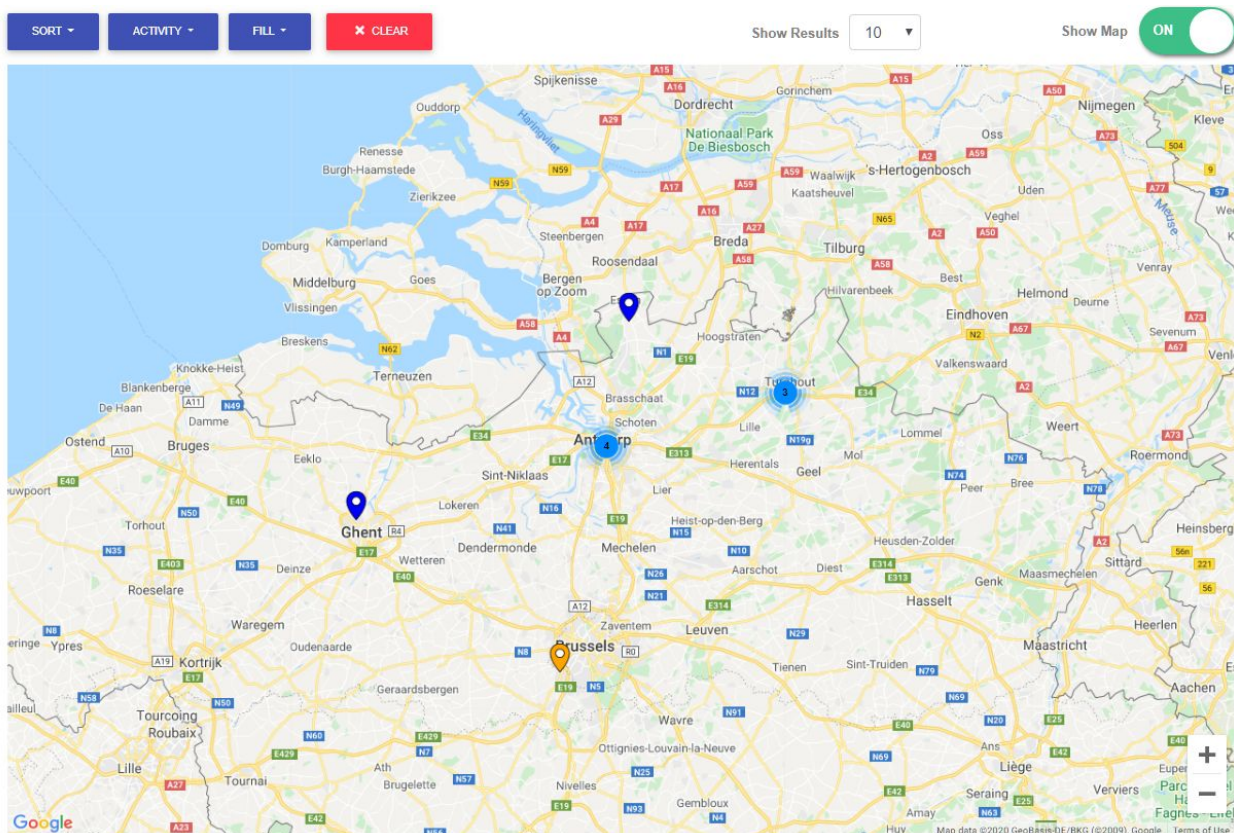
(Image - D9)

1	This is a page size drop down. By default, 10 device cards are shown in the listing
---	---

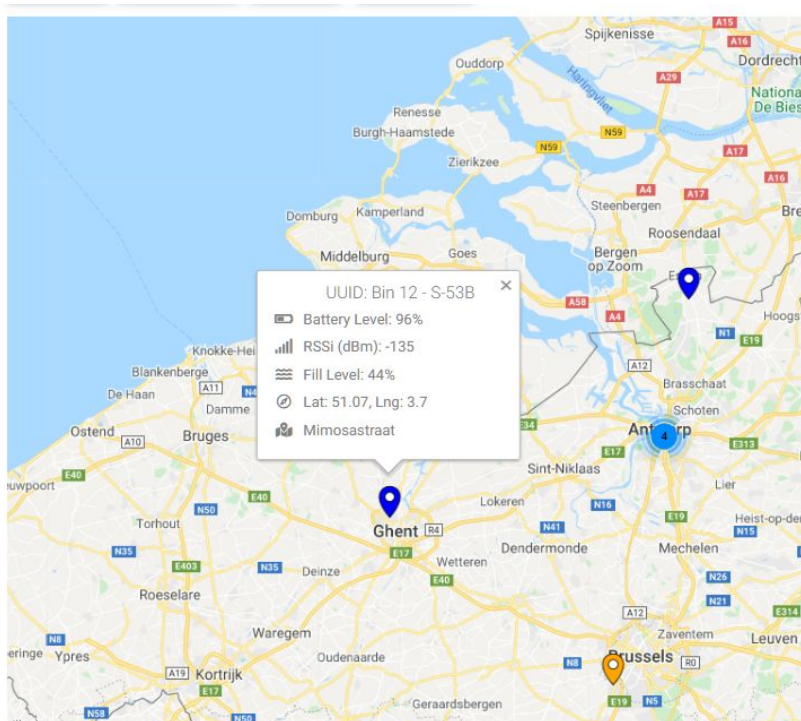
	area. Click this to select a larger value such as 20, 50 or 100.
2	You can show or hide the map area by clicking this. By default, the map area is on (visible).

Map Area

The map area shows device markers on the device locations. The map is draggable and zoomable. If you click a device marker, you will see its details. Note some markers are circles with a number on them. This is a device cluster, it means devices are positioned near to each other or overlapping. Click on the cluster to zoom in.

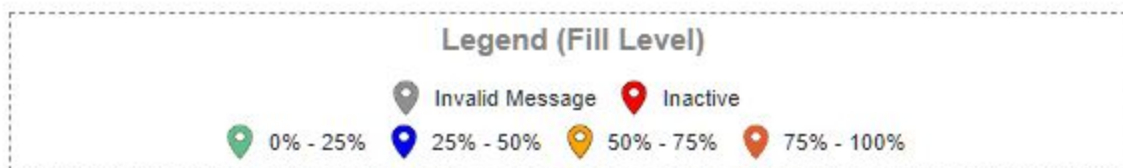


(Image - D10A)



(Image - D10B)

Click on the device marker to show device details, shown in Image D10B.

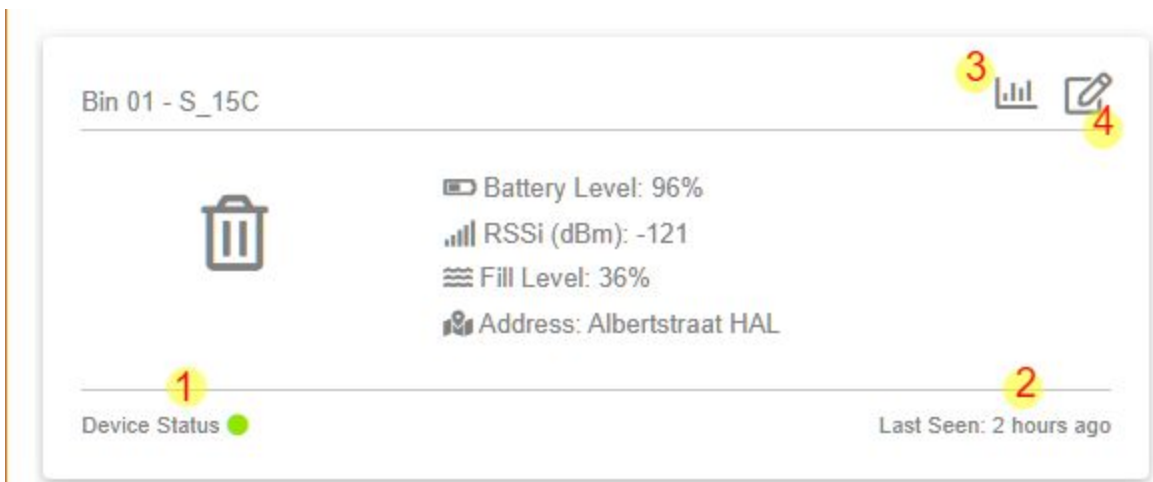


(Image - D10C)

Above the device list you see a legend section. This shows color for device markers on the map for different fill values. Note that devices with an invalid fill message have gray markers. Inactive devices have bright red markers. An inactive device is a device that has never transmitted, or hasn't transmitted in the past 24 hours. Gray markers (invalid message) mean the device is transmitting but the value is not valid.

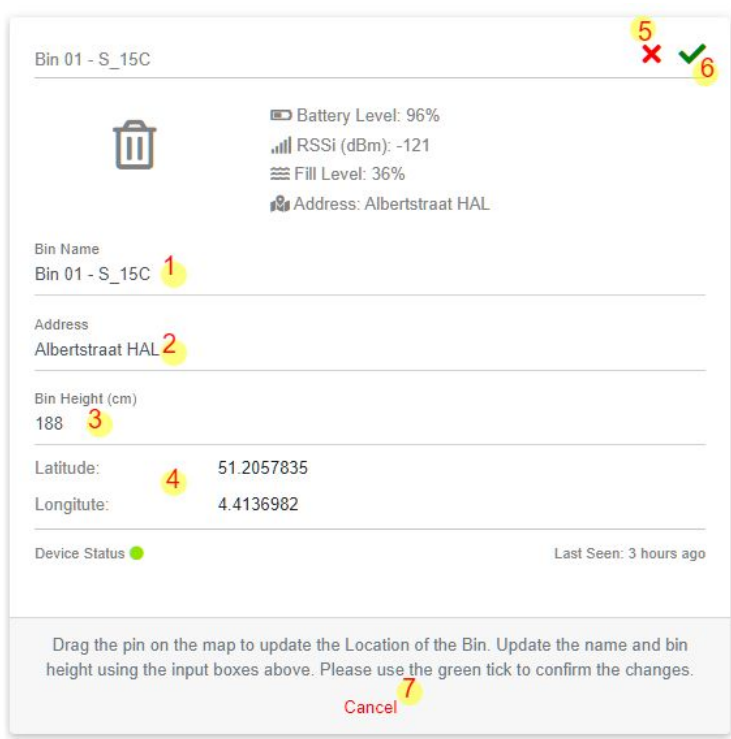
Edit Device

On each device card, there is an edit button, numbered (4) below.



(Image - D11)

Click and the card will change to *Edit mode* as shown below:



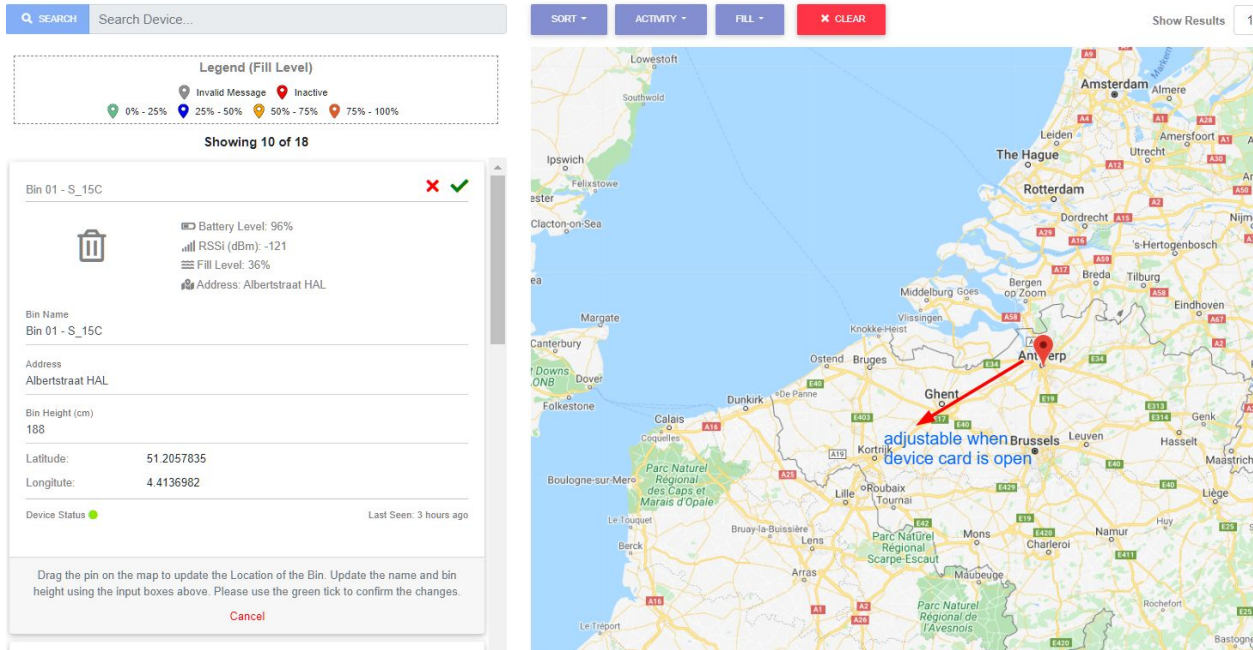
(Image - D12)

1. Click to modify the device name
2. Click to modify bin depth / height. This is in cm.
3. Click to modify the device address.
4. The location coordinates are also tied to the device marker on the map, which is adjustable on the map.
5. If you wish to discard your changes, click the cross icon.
6. After making your changes, click the tick to save them.
7. Same as 5.

Notes: Open a device card in edit mode locks up search bar and filters, also you cannot open other devices unless you close the currently open card either by cancelation or saving. Also, device addresses cannot be left empty see if you are editing a device details for the first time you will need to enter an address.

You can also change the location of the device. While you are in edit mode, the map will show a single marker for the device being edited.

You can drag that to adjust the device location. When you save by clicking the tick (3), all information is saved.



(Image - D13)

Time Series

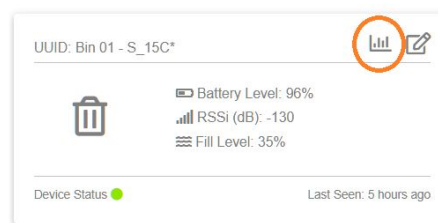
Device ID: Bin 16 - S71B.

[Back to Dashboard](#) / [Devices](#) / Bin 16 - S71B.



(Image - D14)

When you click on the time series icon (highlighter on image on right) on a device card, you'll land on the time series page similar shown above. On this graph, fill level %s over time are plotted (x-axis is date/time, and y-axis is fill level %).



(Image - D15)

Bring your mouse over to a data point on the line graph, it will show a tooltip as highlighted in graph image above. The tooltip will show the fill level % and time of that reading.

Also note the four buttons above the graph, labeled “Last 7 Days”, “Last 15 Days”, “Last 30 Days” and “Last 60 Days”. If you click on, for example, “Last 15 Days”, the graph will redraw for messages since the last 15 days.

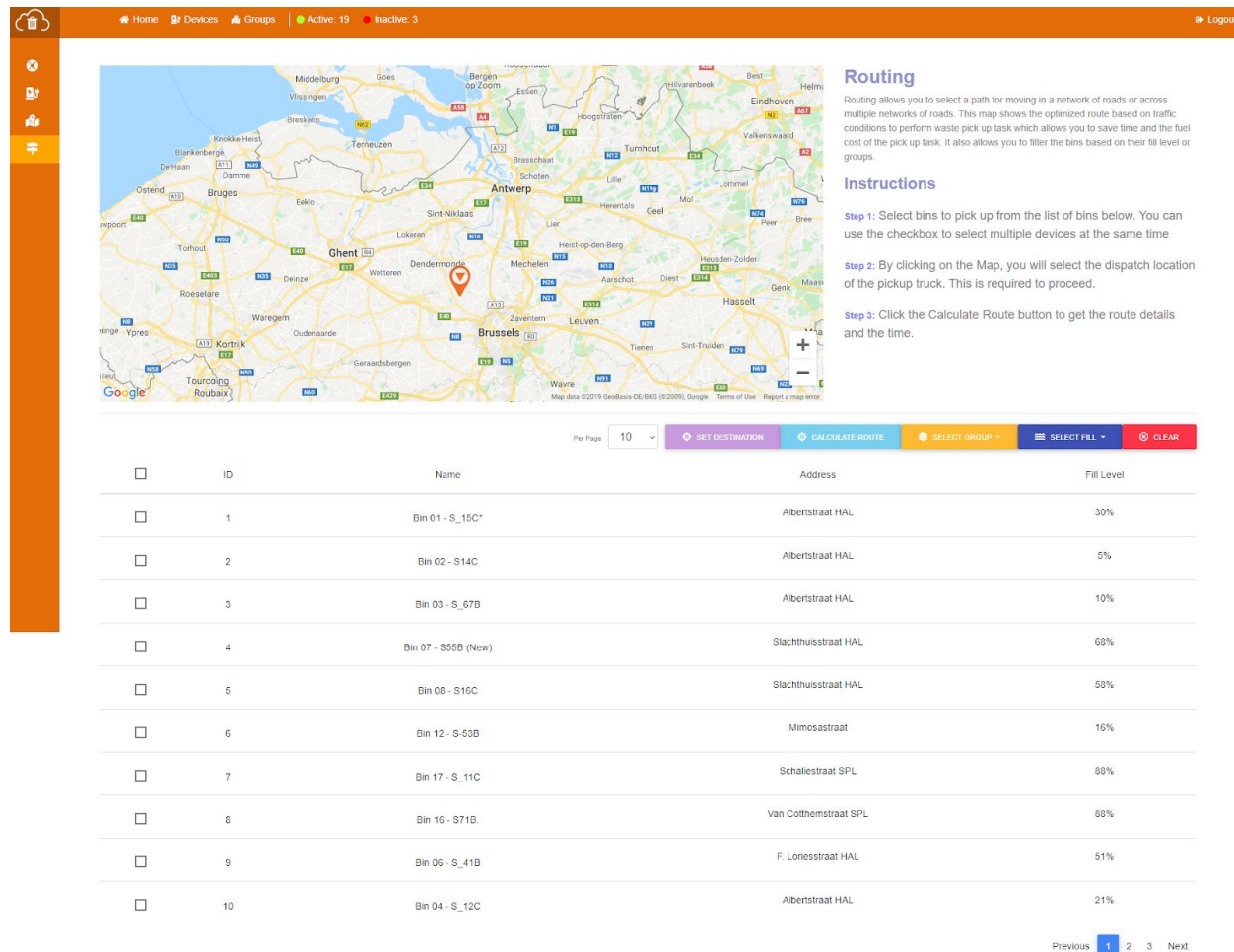
Scrolling below on this page you will find a “Device Messages” table, as shown:

DEVICE MESSAGES				
Date	Battery (%)	Fill Level (%)	Raw Distance (cm)	RSSI (dB)
Mon 04 Nov 2019 - 05:58 pm	96%	30%	131	-130
Mon 04 Nov 2019 - 11:58 am	96%	30%	131	-131
Mon 04 Nov 2019 - 05:58 am	96%	30%	131	-132
Sun 03 Nov 2019 - 11:58 pm	96%	30%	131	-128
Sun 03 Nov 2019 - 05:58 pm	96%	30%	131	-127
Sun 03 Nov 2019 - 11:58 am	96%	21%	148	-131
Sun 03 Nov 2019 - 05:58 am	96%	20%	149	-126
Sat 02 Nov 2019 - 11:58 pm	96%	23%	144	-128
Sat 02 Nov 2019 - 05:58 pm	96%	6%	176	-133
Sat 02 Nov 2019 - 11:58 am	96%	6%	176	-129

(Image - D16)

Each row shows the time, battery %, fill level %, raw distance (cm) and signal strength (RSSI) for that particular message with time stamps.

Routing



Routing

Routing allows you to select a path for moving in a network of roads or across multiple networks of roads. This map shows the optimized route based on traffic conditions to perform waste pick up task which allows you to save time and the fuel cost of the pick up truck. It also allows you to filter the bins based on their fill level or groups.

Instructions

Step 1: Select bins to pick up from the list of bins below. You can use the checkbox to select multiple devices at the same time

Step 2: By clicking on the Map, you will select the dispatch location of the pickup truck. This is required to proceed.

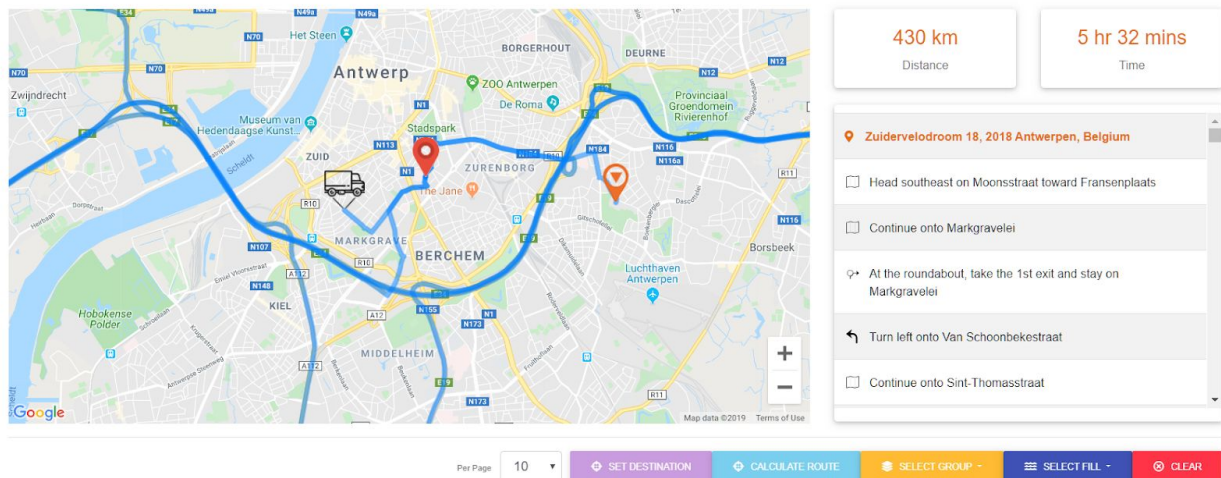
Step 3: Click the Calculate Route button to get the route details and the time.

ID	Name	Address	Fill Level
1	Bin 01 - S_15C*	Albertstraat HAL	30%
2	Bin 02 - S14C	Albertstraat HAL	5%
3	Bin 03 - S_67B	Albertstraat HAL	10%
4	Bin 07 - S56B (New)	Slachhuisstraat HAL	68%
5	Bin 08 - S16C	Slachhuisstraat HAL	58%
6	Bin 12 - S-63B	Mimosastraat	16%
7	Bin 17 - S_11C	Schalestraat SPL	88%
8	Bin 16 - S71B	Van Cotthemstraat SPL	88%
9	Bin 05 - S_41B	F. Lonesstraat HAL	51%
10	Bin 04 - S_12C	Albertstraat HAL	21%

(Image - R1)

To create an optimized route going through specified bins, you need 3 things: an origin point (pickup vehicle dispatch location), a set of bin locations, and a destination point (dump location)

On the routing screen, you can see a map area and beneath that a table. On the map area, you can set the origin and destination points. To select bins, use the table below to check the devices on the route.



(Image - R2)

The image above shows a sample route. Follow these steps:

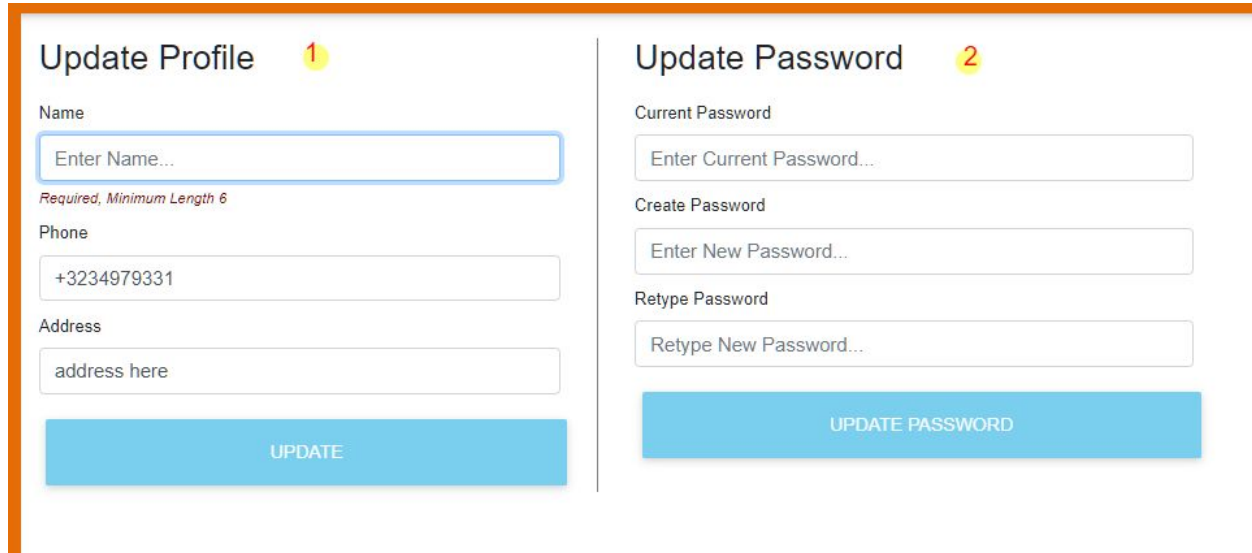
1. Click on the map to select an origin point. This is the truck icon. You can drag this marker to adjust the origin (dispatch) location.
2. From the table, check those bins that need to be enroute.
3. Click the 'Set Destination' button. Now click on the map to set a destination marker. The destination marker looks different from bin markers.
4. Click 'Calculate Route' to show the route.
5. To calculate a new route, first press the 'Clear' button (rightmost button in red). This will clear the map from all markers and unselect all bins.

Once the route is calculated, the side panel shows the route distance, time of the route and route directions to follow.

Tip: You can drag origin and destination markers for changes.

Settings

You can access 'settings' by clicking it from the top navigation bar, towards the right corner.



The screenshot shows a settings interface with two main sections side-by-side. The left section, labeled 'Update Profile' with a yellow circle containing the number '1', contains three input fields: 'Name' (placeholder 'Enter Name...'), 'Phone' (placeholder '+3234979331'), and 'Address' (placeholder 'address here'). Below these fields is a blue 'UPDATE' button. A red error message 'Required, Minimum Length 6' is visible below the Name field. The right section, labeled 'Update Password' with a yellow circle containing the number '2', contains three input fields: 'Current Password' (placeholder 'Enter Current Password...'), 'Create Password' (placeholder 'Enter New Password...'), and 'Retype Password' (placeholder 'Retype New Password...'). Below these fields is a blue 'UPDATE PASSWORD' button.

(Image - P1)

This has two columns, labeled 1 and 2. Column 1 is for updating your profile information, just click in the relevant fields and press 'Update' when finished correctly. The system includes validation checks on the values you enter, and in case of an invalid value it will be included through red text beneath the field as shown in image S1.

Column 2 is for changing the password. You will need your current password, and enter your new password twice under 'Create Password' and 'Retype Password' fields. Click 'Update Password' when done.

Platform Revision History

VERSION	DATE	DESCRIPTION	EDITOR
1.0.1	12/02/2020	Minor improvements	SmartEnds
1.0.0	01/12/2019	G.A release manual	SmartEnds
0.0.1	01/11/2019	First version	SmartEnds