



# LightBug Zero & Pro User Manual

*Due to software updates, your experience of the software interface (including but not limited to software features, user interfaces, and interaction experiences) may differ from the interface presented in this manual. The software interface is subject to change as we continuously work on providing you with the best experience!*

# Contents

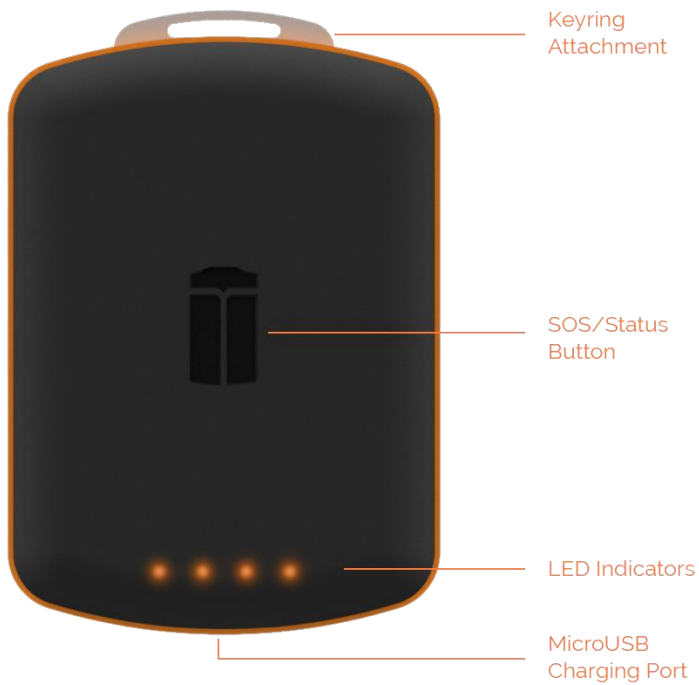
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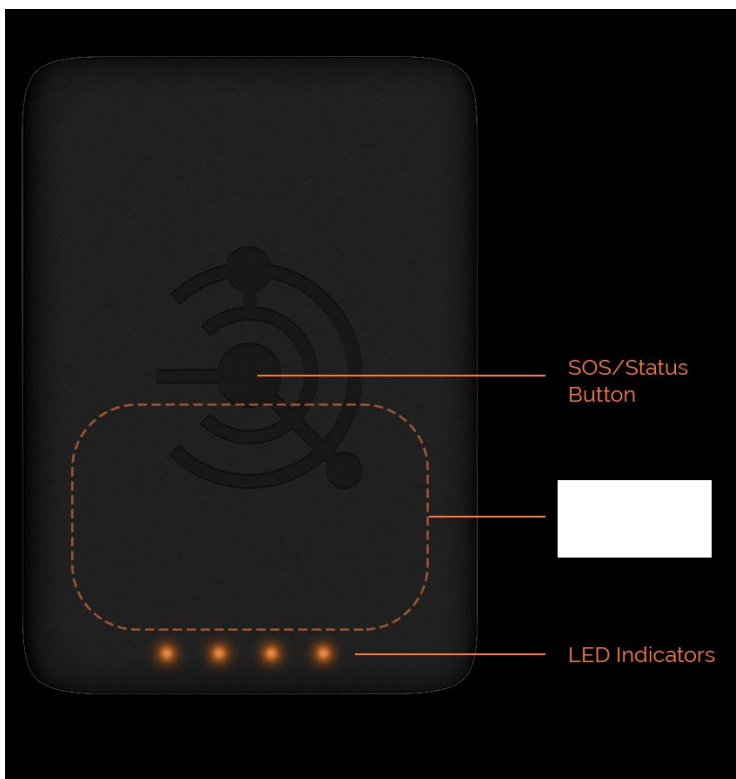
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# Meet LightBug

## Front View [Zero]



## Front View [Pro]



## Setting up your tracker

This section will highlight how to activate your tracker.

### Charging your tracker before initial use:

You will need to charge your tracker as follows before initial use:

The LightBug **Zero** needs to be charged for at least **2 hours**

The LightBug **Pro** needs to be charged **overnight**

### Charging your LightBug Zero:

The LightBug Zero is charged via any standard USB cable either via wall adapter or via USB port.

It is advisable to use an adapter plugged into a power socket rather than using a computer USB port or similar.

A full charge should be achieved in 2 hours. **The LED indicators on the LightBug Zero will turn off when it is fully charged.**

**The LED indicators on the LightBug Pro will turn off when it is fully charged.**



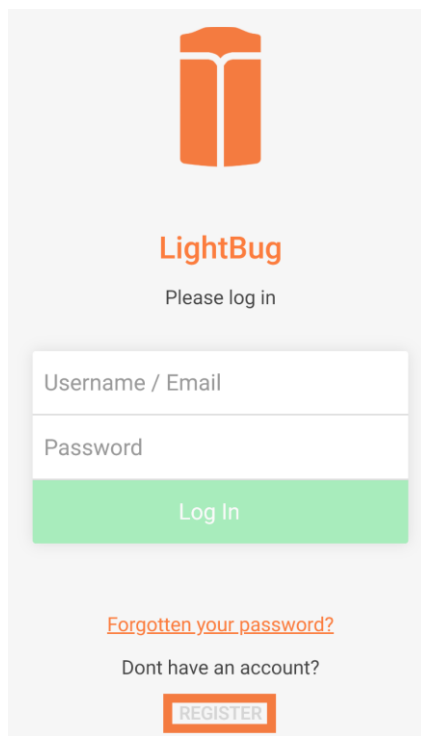


## Activating your tracker


To activate your tracker you will need to download the LightBug App on your smartphone or visit our web portal: [app.thelightbug.com](http://app.thelightbug.com)

### Creating an account:

Once you have downloaded the LightBug App or visited our web portal, you will need to register an account if you do not already have one.



The image shows a login and registration interface for the LightBug app. At the top is the LightBug logo, which consists of an orange stylized book icon. Below the logo is the text "LightBug" in orange, followed by "Please log in" in black. There are two input fields: "Username / Email" and "Password". Below these fields is a green "Log In" button. At the bottom, there is a link "[Forgotten your password?](#)" in orange, followed by the text "Dont have an account?" in black, and a "REGISTER" button with an orange border.



**LightBug**

Please log in

Log In

[Forgotten your password?](#)

Dont have an account?

REGISTER



**LightBug**

Sign up now

Create Account

Already have an account?

LOG IN

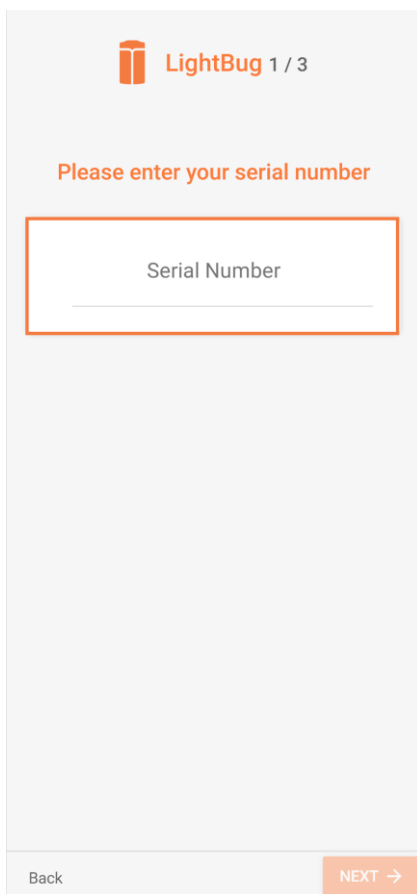
### Linking your first tracker to your account:

After creating a new account the LightBug App or the web portal will guide you through 3 steps in order to link your tracker to your account.

## Step 1: Entering Serial Numbers

Enter your tracker Serial Number. The serial number is located on the front side of the LightBug Pro tracker. As for the LightBug Zero, the serial number is located on the back.

**Hint:** The LightBug App will allow you to scan the barcodes using your smartphone's camera.

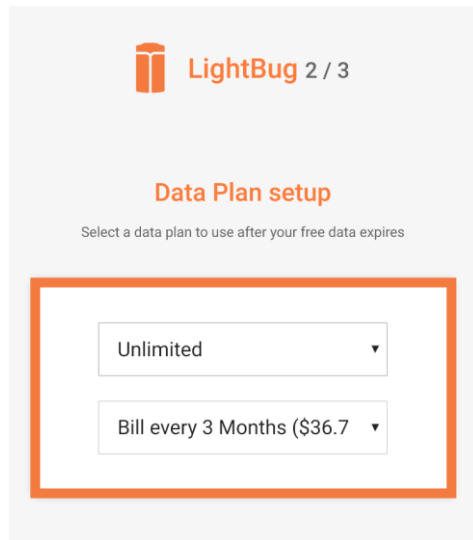


The screenshot shows a mobile app interface for 'LightBug'. At the top, there is an orange icon of a bug and the text 'LightBug 1 / 3'. Below this, the instruction 'Please enter your serial number' is displayed in orange. A large, empty text input field with an orange border is centered on the screen, containing the placeholder text 'Serial Number'. At the bottom of the screen, there is a 'Back' button on the left and a 'NEXT →' button on the right, both in orange.

## Step 2: Setting up your Data Plan

Choose a plan and the billing period.

**Hint:** You can change your plan and billing period later on.



LightBug 2 / 3

### Data Plan setup

Select a data plan to use after your free data expires

Unlimited ▼

Bill every 3 Months (\$36.7 ▼)

## Step 3: Adding billing information

Add your billing information so that your tracker will remain active after your free trial period.

**Caution:** Your LightBug tracker will not activate if you do not add your billing information.

**You will not be charged until your free trial period is over.**

## Billing details

### Secure payments by Stripe

Please enter billing details for data plans.  
**Your card will not be charged.**

 Card Number

 Expires MM      YY

 Security Code (CVC)

 Billing ZIP/Postal Code

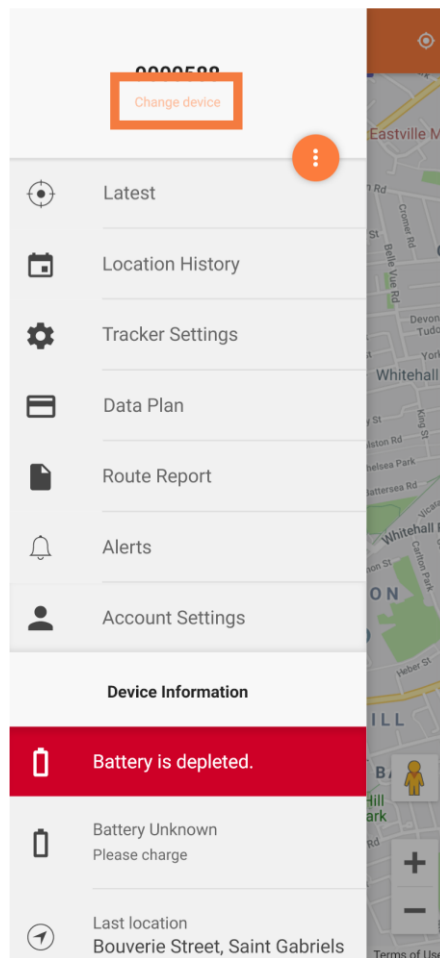
Payment will only be taken after you select a plan  
and free data expires

**CANCEL**   **SAVE**

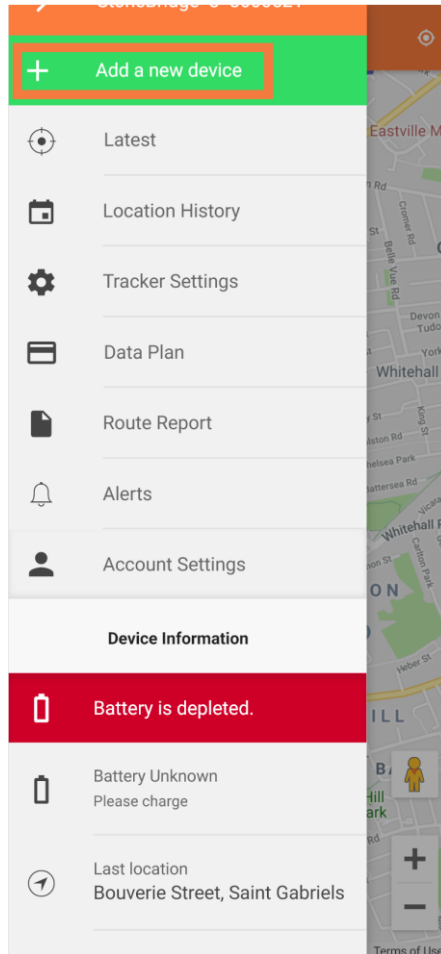
## Adding more trackers to your account:

If you would like to add more trackers to the same account you will need to be logged in from the desired account and then follow these 2 steps:

Click on change device:



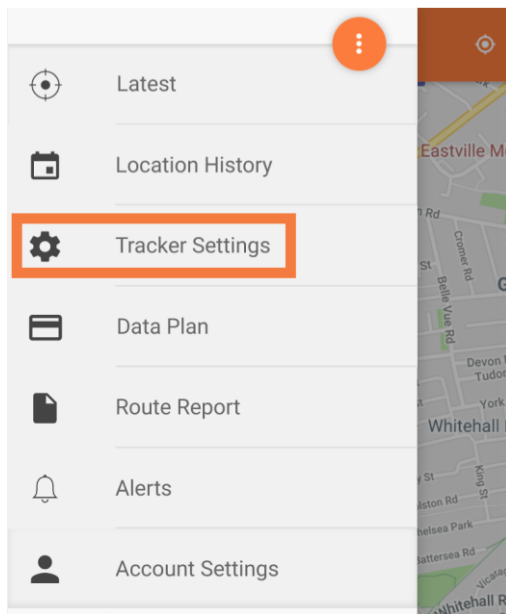
Scroll down till you see “Add a new device”



Then follow the steps [highlighted earlier](#) in this section.

## Configuring your LightBug Tracker using the setup wizard:

You can always change the setting on your tracker via the Tracker Settings tab:



### Step 1: Naming your tracker

Give your tracker a name so you can quickly identify it if you have more than one tracker on the same account.





LightBug 1 / 5

Give your device a name

T-1509


MANUAL CONFIGURATION

Exit

NEXT →

## Step 2: Setting up GPS and WiFi Safe-Zones

These settings will help you save battery life in areas where tracking is not required and where the tracker can report its location less often.

 **LightBug** 2 / 5

Safe-zones save battery and reduce false alarms

**GPS Safe-Zone**

SET UP A SAFE-ZONE

GPS safe-zone is currently disabled

**WiFi Safe-Zone**

Home WiFi: Network Name

Password: [Optional]

WiFi safe-zone is currently disabled

Providing your network password will help extend battery life

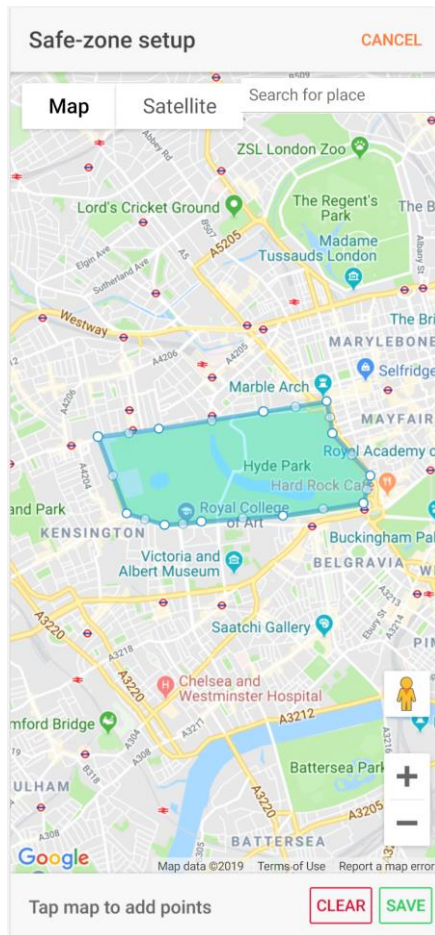
Device will sleep when **inside the safe-zone** or in range of your Home WiFi

Skipping this step will negatively impact battery life

BackNEXT →

### *Setting up GPS Safe-Zone:*

Selecting “Set up a Safe-Zone” will open a map where you can create a geographical safe zone for the tracker. Simply tap or click on the map and start creating your custom polygon that covers the area you want.

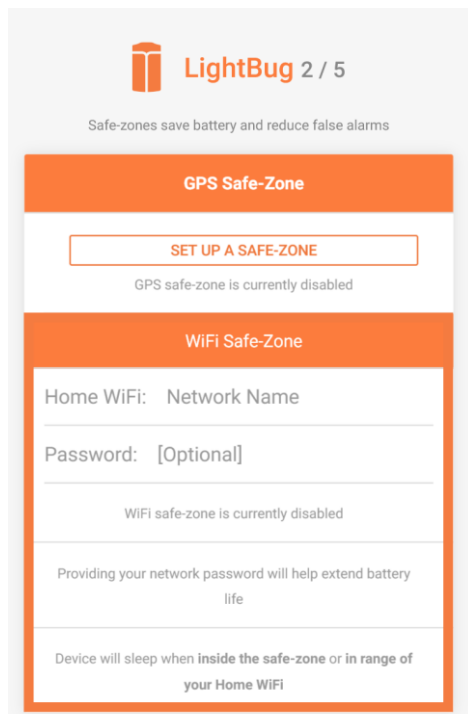


**Note:** When setting up this type of safe-zone, it is advisable to make it at least 50m by 50m to account for GPS inaccuracies.

**Caution:** When the tracker is inside this safe zone, it will only report according to its sleep interval settings (more information in the following steps)

*Setting up WiFi Safe-Zone:*

Setting up your WiFi Safe-Zone will allow the tracker battery to last longer.



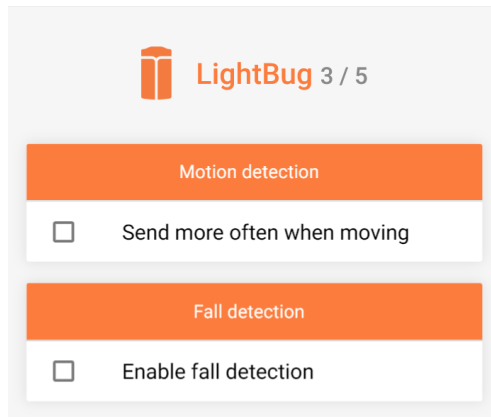
The screenshot displays the 'LightBug 2 / 5' app interface. At the top, there is a header with the LightBug logo and the text 'Safe-zones save battery and reduce false alarms'. Below this, there are two main sections: 'GPS Safe-Zone' and 'WiFi Safe-Zone'. The 'GPS Safe-Zone' section has an orange header and a button labeled 'SET UP A SAFE-ZONE'. Below the button, it says 'GPS safe-zone is currently disabled'. The 'WiFi Safe-Zone' section also has an orange header. It contains a form with two input fields: 'Home WiFi: Network Name' and 'Password: [Optional]'. Below these fields, it says 'WiFi safe-zone is currently disabled'. At the bottom of the WiFi section, there is a note: 'Providing your network password will help extend battery life'. At the very bottom of the screen, there is a summary statement: 'Device will sleep when inside the safe-zone or in range of your Home WiFi'.

**Caution:** When the tracker is inside this safe zone, it will only report according to its [sleep interval settings](#).

### Step 3: Setting up motion and fall detection

Enabling motion detection will unlock [wake mode](#) update interval. Disabling this option will only allow you to set up [sleep mode](#) interval.

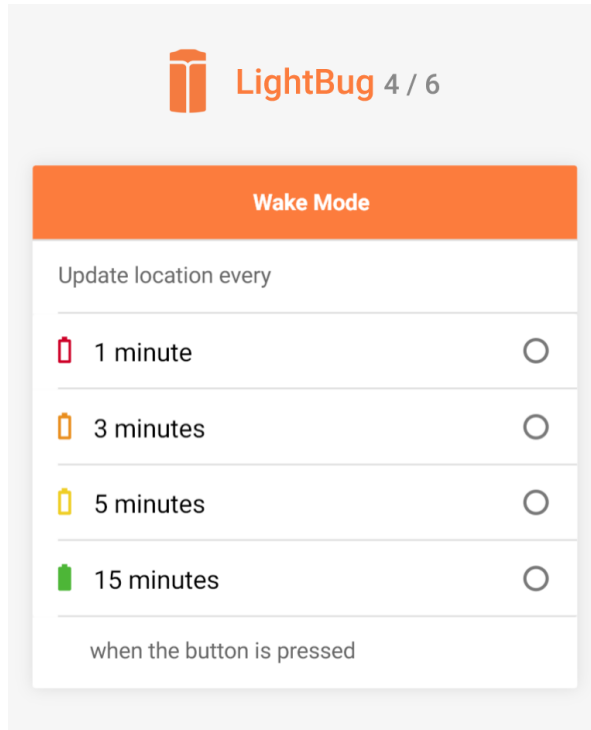
The fall detection feature alerts you when the tracker has been dropped or the person wearing it has fallen.



**Note:** Enabling the fall detection feature will automatically create an alert. If you wish you turn off the alert please refer to the [Alerts Section](#).

### Step 4: Setting up wake mode update interval

This step allows you to configure how often you want the tracker to update its location when it is moving outside the safe zones.

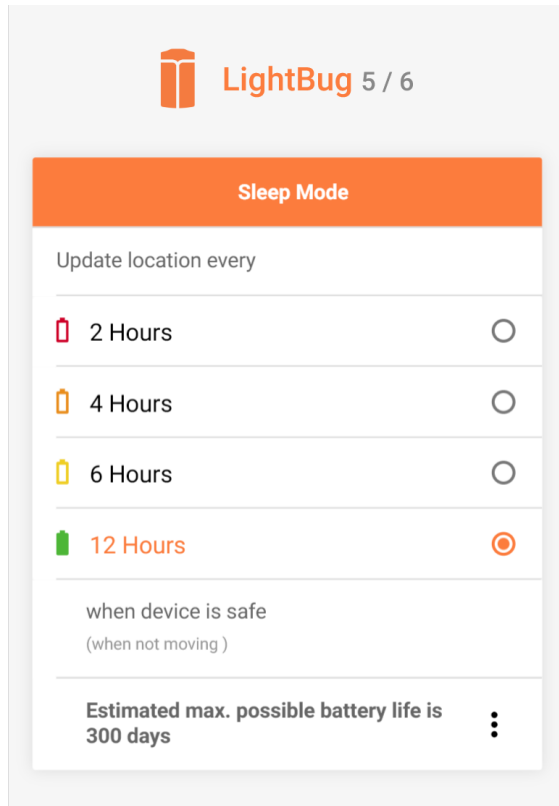


**Hint:** [Motion sensitivity](#) can be adjusted in the advanced settings section.

**Caution:** This step will not appear if you have not enabled motion detection in the [previous step](#).

### Step 5: Setting up sleep mode update interval

This step allows you to configure how often you want the tracker to update its location when not moving or when inside a [safe-zones](#).

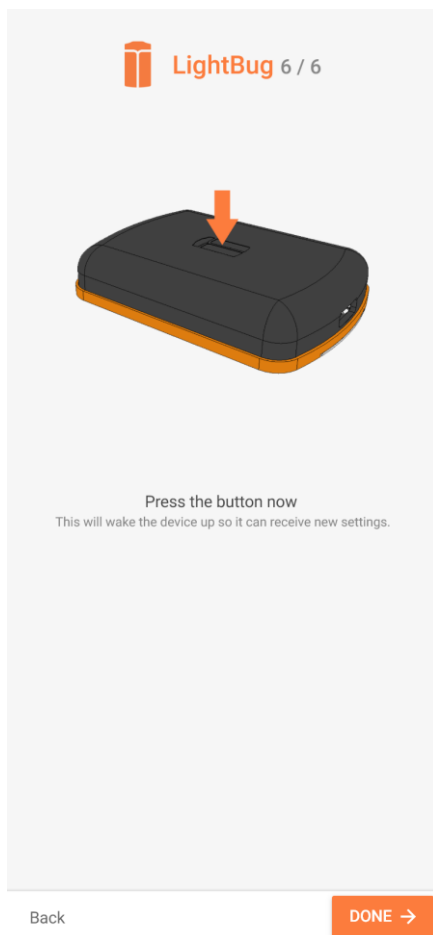


**Hint:** Longer intervals between location updates will increase battery life so it is advisable to set this to 12 hours.

**Caution:** If your tracker moves outside the safe-zone it will wake up straight away, regardless of this setting.

## Step 6: Applying the settings

By pressing the button on the tracker the new settings will be applied immediately.





**Note:** You can skip this step if you do not have your tracker at hand, this will mean the tracker will update its settings the next time it is scheduled to send a location update.

## Configuring your LightBug Tracker using manual configurations

This section outlines the more advanced settings available to advanced users who want to tweak their tracker to better suit their needs.

To unlock these settings you will have to select “Manual Configuration” in your Tracker Settings Tab.

A screenshot of the LightBug manual configuration interface. At the top, there is a LightBug logo (two vertical bars) followed by the text "LightBug 1 / 6". Below this, the instruction "Give your device a name" is displayed in orange. Underneath the instruction is a large, empty white rectangular input field. At the bottom of the screen, there is a button with an orange border and the text "MANUAL CONFIGURATION" in black capital letters.

Many of these settings are the same as the ones available via the Setup Wizard, so this section will only cover the settings that are a little different.

## Setting up custom wake and sleep mode intervals

You can adjust wake and sleep mode intervals via these settings if you are not happy with the preset settings in the setup wizard:

The screenshot shows a settings interface with four sections, each separated by a horizontal line. The first section, 'When moving, Update location every', has a value of '0 hrs' and '1 min'. Below it, text explains that in wake mode, GPS position is recorded every 1 minute and can be changed using the 'Breadcrumb' setting. The second section, 'When stationary, Update location every', has a value of '12 hrs' and '0 min'. Below it, text explains that in sleep mode, location is not recorded. The third section, 'Fall Detection', has an unchecked checkbox. The fourth section, 'When the button is pressed', is empty. At the bottom is a green 'SAVE' button.

When moving, Update location every

− 0 hrs + − 1 min +

in wake mode, i.e. when moving  
GPS position will be recorded every 1 min .  
Change this using the **Breadcrumb** setting below

When stationary, Update location every

− 12 hrs + − 0 min +

in sleep mode, i.e. if not moving

Fall Detection

☐ Enable Fall Detection

When the button is pressed

SAVE

**Hint:** You are able to set the wake mode interval to seconds if you select “0 hrs” and “0 min”, this will unlock a box that will allow you to input a custom number in seconds.

### When moving, Update location every

−

0 hrs

+

−

0 min

+

30

seconds

in wake mode, i.e. when moving

GPS position will be recorded every 30s. Change this using the **Breadcrumb** setting below

## Setting up Breadcrumbs

Breadcrumbs is a great power saving feature that allows your LightBug tracker to record location updates between transmissions, giving you more details with every location update while saving your battery.

### Breadcrumbs

Record 

−

1

+

 locations between transmissions to create a trail of points

Allows you to save battery by recording often but transmitting less regularly (min. 1 per minute)

**Example:** Interval is set to 20 minutes and breadcrumbs is set to 20. The app will only update every 20 minutes, but the spacing between points will be just 1 minute.

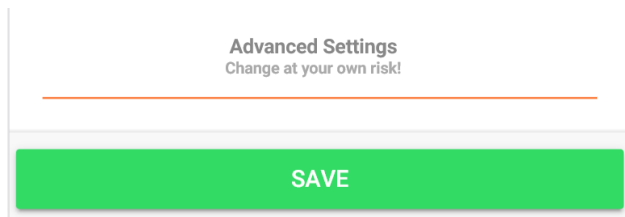
Example on how it works:

Say you only want your LightBug tracker to send location updates every 30 minutes but you would like to see more

location updates between these 30 minute transmissions. So you set up the Breadcrumbs value to 10, meaning the tracker will record 10 location updates between each transmission (one location is saved every 3 minutes) and send these saved locations all together in one go at the 30 minute mark.

### Other advanced settings

To unlock this you have to scroll all the way down in your Manual Configuration until you see “Advanced Settings”. Click/Tap on the message and you will see more settings show up.



**Caution:** This is for advanced users only, so please do not change any settings that you are not sure of. You can contact us at any time if you need further explanation on these settings or if you need our advice on optimal configurations.

### Movement Settings:

This enables you to change how sensitive your LightBug tracker is to motion and how long it has to remain stationary in order to count as a stop.

↓ Advanced Settings ↓  
Change at your own risk!

---

### Movement Settings

---



Movement Threshold (1/5) - higher values mean the device needs to move more before waking up.

Wait at least  90s  after movement stops before sending a location and returning to sleep mode

If you are mainly interested in where device has stopped (and not how it got there), you can set a short timeout with a longer transmit interval.

## Adjusting Motion Sensitivity

You can adjust how sensitive your tracker is to motion and vibrations via the slider shown below.

## Movement Settings

---



Movement Threshold **(1/5)** - higher values mean the device needs to move more before waking up.

Moving the slider all the way to the left (1/5) means the slightest tap will wake up the tracker and trigger wake mode if your tracker is outside the safe zones.

Moving the slider all the way to the right (5/5) means the tracker will need more of a shake to trigger wake mode if your tracker is outside the safe zone.

### Adjusting Wake Mode Timeout

You can also adjust how long the tracker should remain still before it transmits a location update and enables sleep mode.

Wait at least  **90s**  after movement stops before sending a location and returning to sleep mode

If you are mainly interested in where device has stopped (and not how it got there), you can set a short timeout with a longer transmit interval.

## GPS Settings

This allows you to program how long the tracker should wait on a GPS signal before resorting to other location technologies and how long it should wait on a more accurate GPS signal once it has a GPS fix.

### GPS Settings

---

Wait up to  **90s**  for a GPS fix

before giving up. WiFi / Cell positioning will be used if this happens.

Giving the GPS more time to get a fix is useful if using Zero4G indoors but will drain the battery faster.

If Zero4G is inside a metal box (like a truck), leaving the GPS on longer will not help and simply drain the battery.

Let the GPS run for  **10s**  to

stabilize.

Higher values may increase accuracy

The first field allows you to select how long the tracker should wait for a GPS signal before giving up and using WPS or GSM triangulation.

The second field allows you to select how long the GPS should run for after getting a GPS fix in order to improve accuracy.

## Misc. Behavior Settings

There are further settings that you can enable. Again we advise you not to change any of these unless you are certain you know what you are doing.

**Misc. Behavior Settings**

☐

Leave the GSM on when awake

☐

Leave the GSM on when asleep

☐

Leave the GPS on when awake

☐

Disable WiFi accuracy assist

☐

Always send same location in sleep

☐

Disable Bluetooth

☐

Disable WiFi

SAVE



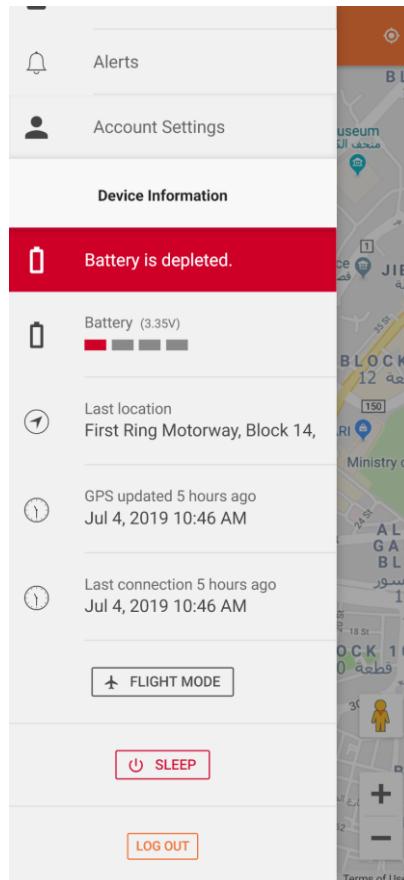
## Using the LightBug App and Web Portal

The LightBug App is available for both Android and iOS devices. You can also access your account from any browser (including smartphone browsers) by visiting [app.thelightbug.com](http://app.thelightbug.com)

**Caution:** The web portal works and functions exactly as the LightBug App but you will only receive notifications to your phone if you have the App installed.

## The Side Menu

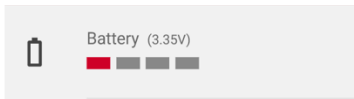
The side menu has all your tabs along with some information about your tracker:



**Note:** In the Web Portal the side menu will be opened by default.

#### *Battery status:*

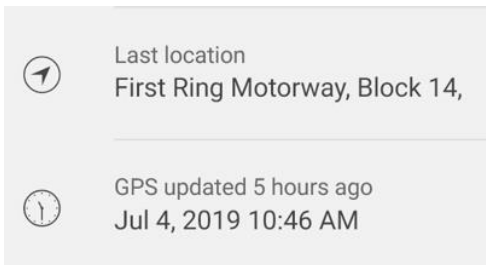
Battery status is shown by these 4 bars. By default an alert will be triggered when the battery level is below 25%.



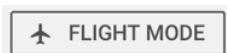
**Caution: Battery level is sent along with every location update meaning if your last location update was 2 days ago, the battery status you are seeing is what it was 2 days ago!**

#### *Last location:*

Here you can see the last location update details along with the time stamp:

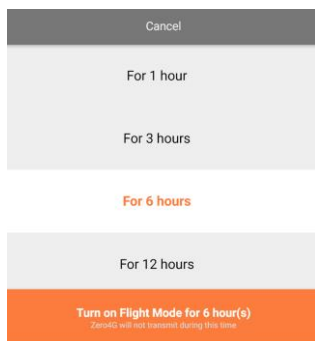


#### *Other buttons:*



Flight mode button allows you to put the tracker into airplane mode so that it is safe to board a plane.

This will open a popup where you can set an automatic timer after which the tracker will automatically wake up and resume operations.



**Hint:** You can wake your tracker up prematurely by pressing the button on the tracker.



Sleep button will put the tracker to sleep for up to 24 hours.

Pressing the sleep button will open up a warning menu like the one below:

## Are you sure?

This will lock the device in sleep mode for up to 24h. Use this command to **temporarily disable location updates** when moving.

To wake the device up, physically **press the button** on the front of your unit.

You **will not** be able to wake it on from the app

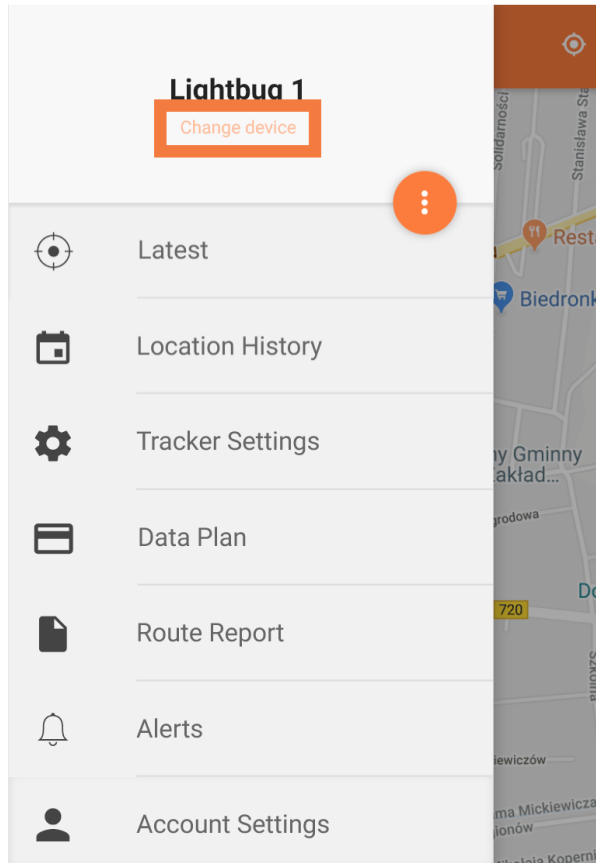
CANCEL SLEEP

LOG OUT

This will allow you to logout of your account.

## Selecting a Tracker

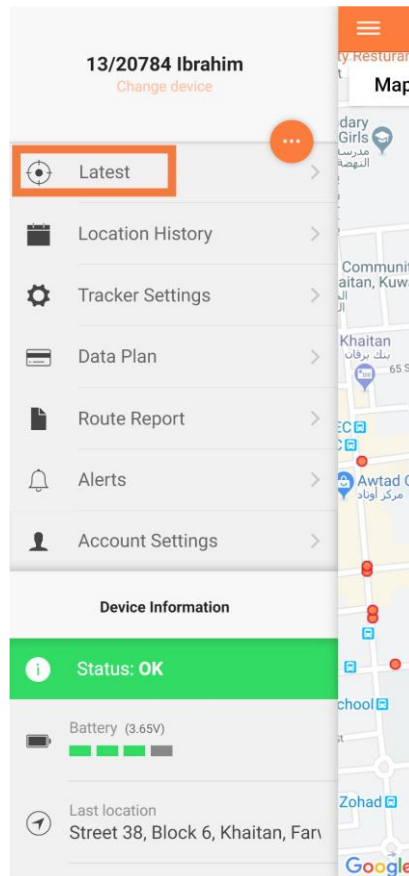
In the LightBug App you will need to open the side menu and then tap on change device:

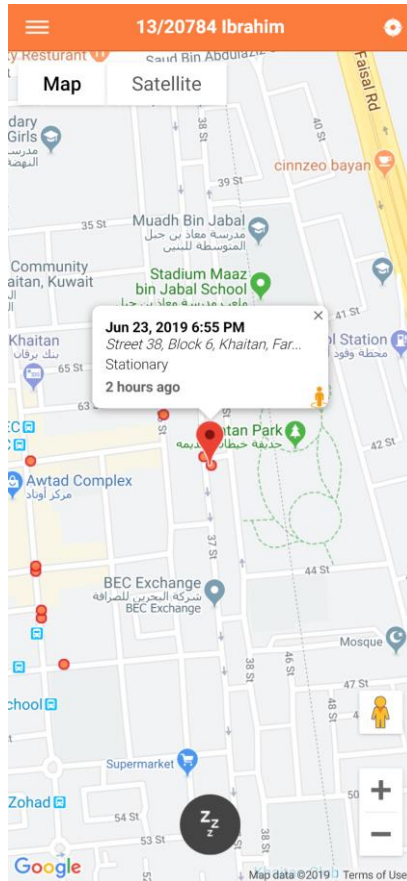


A list will appear with all your trackers and you can tap on the one you would like to choose.

## Latest Tab

The Latest location history tab show you the last 10 location updates along with the last know location of the tracker:





The popup message will display further information about the tracker such as:

- Date & Time of the last location update
- Street address of your tracker
- If the tracker is moving it will display the speed in KM (or Miles depending on your settings), otherwise it will display "stationary"



*What the buttons do:*



This button, located on the top right, will pan the view of the map to center your tracker's last known location



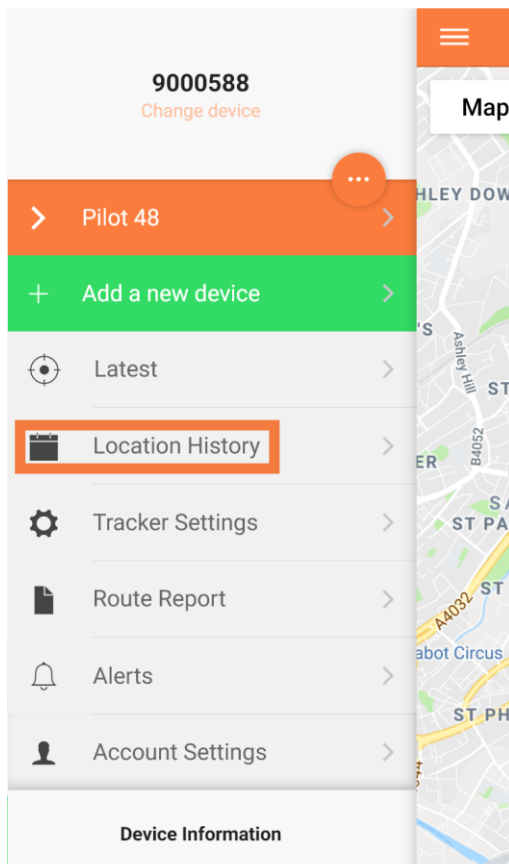
This button, located at the bottom, will show you the tracker status. Clicking/tapping on this icon will display more information on when the next update can be expected.

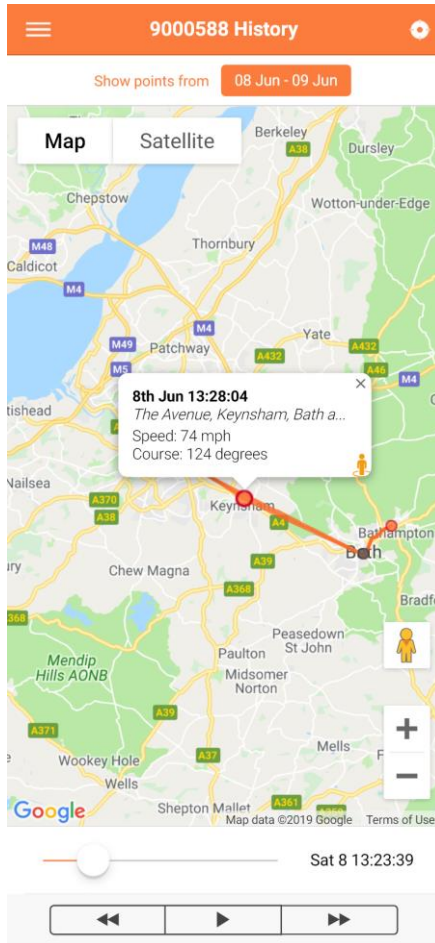
**Caution:** Tracker status might be showing as “asleep” even though it is in wake mode. This is because the tracker goes into sleep mode between transmissions to save battery.

## Location History Tab

This will display the location history of the selected tracker for the selected time period.

**Hint:** We store unlimited data so you are able to go back in time and view location history from day 1 of your purchase!





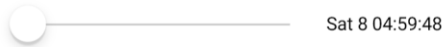
*What the buttons do:*



This button, located on the top right, will pan the view of the map to center your tracker's location history.

Show points from 08 Jun - 09 Jun

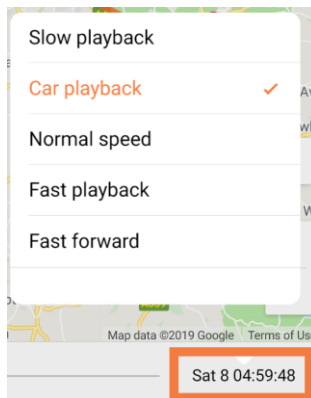
This enables you to set a start and end date for the location history you would like to see.



Moving this slider allows you to look at a specific time within the selected dates.



This allows you to auto play the location history.

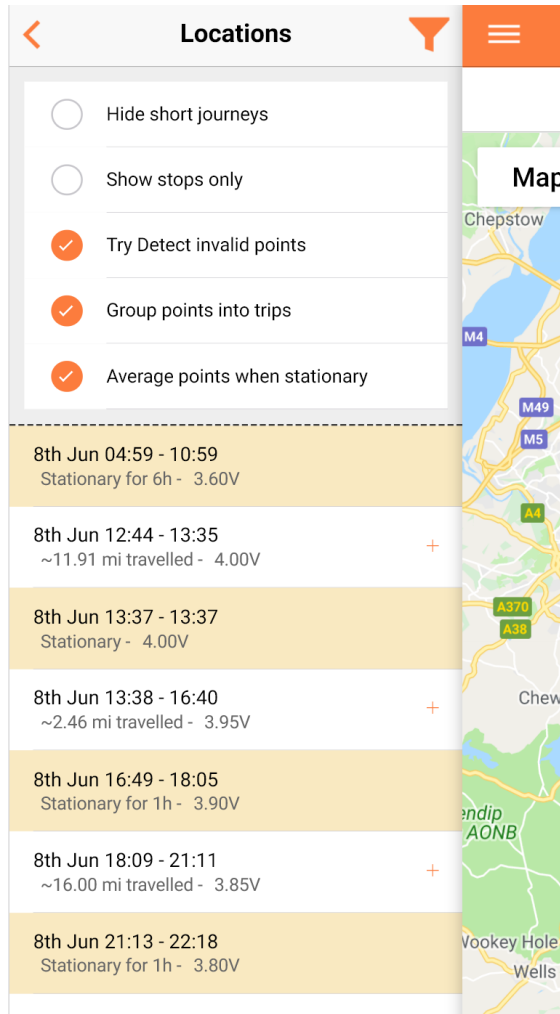


Tapping/clicking on the time and date here will allow you to adjust the playback speed.

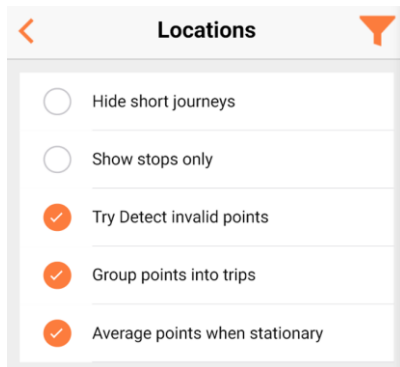
**Hint:** When using the LightBug App, for better slider sensitivity it is advisable to see one day at a time or holding your phone in landscape mode.

## Trips Tab & Filters

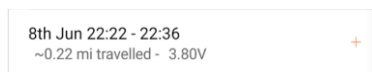
This will be displayed by default on the Web Portal. LightBug App users have to click the tab button again when in location history to display the following:



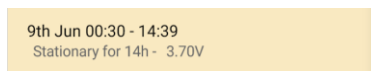
Here you can see your location history grouped into trips along with the stops.



The Filter button on the top right will give you more control over how your history is displayed along with what information is displayed.



Tapping on a trip will expand the view to show you the trip points for more details.

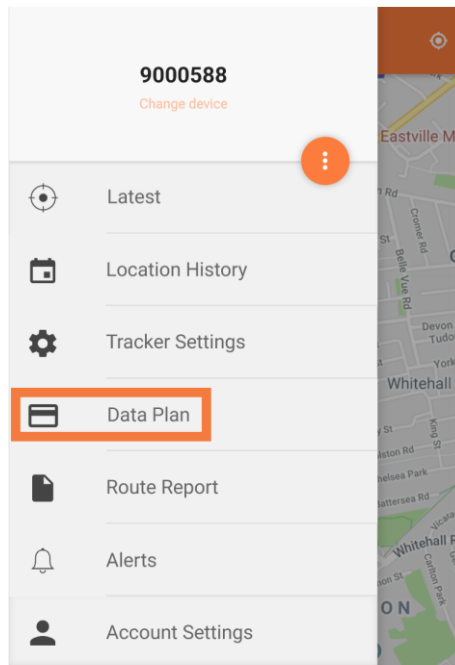


Stops are highlighted, tapping on a stop will pan the map view to show you where the stop occurred.

## Data Plan Tab

The Data Plan Tab allows you to manage your tracker subscription and billing information.

**Hint:** Making changes in this tab only affects the selected tracker. If you need to manage the subscription for another tracker be sure to [select that tracker](#) before you make the changes!



**Caution:** Trackers with no billing information will not be active.



Once open you will see your active plan (if any) at the top and you will see a selection of data plans that you can pick from and their according prices:



## 9000588 Data Plan

Active Subscription

### Standard Quarterly

Next bill date: Jun 9, 2020

Which Plan?

#### Unlimited Yearly

£99.99 every 12 months

**Unlimited update rate**

SELECT

#### Standard Yearly

£49.99 every 12 months

**Update rate limited to 4h**

SELECT

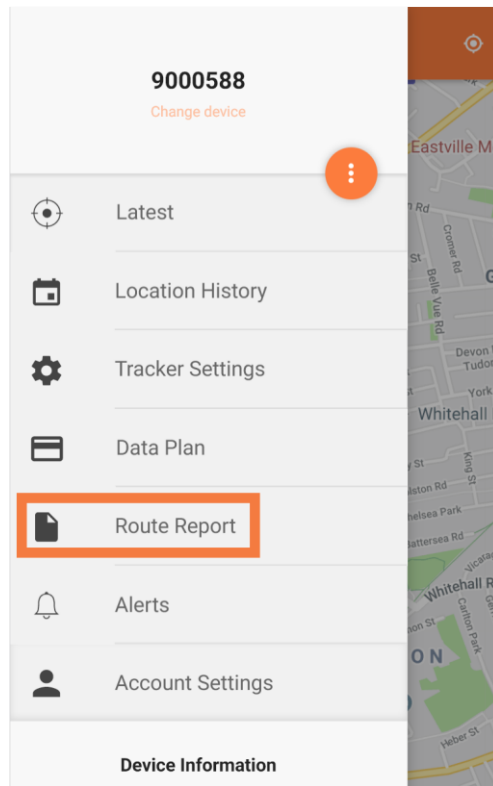
#### Unlimited Quarterly

£28.20 every 3 months

**Unlimited update rate**

## Route Report Tab

This tab shows a text report of your tracker's location along with the distance travelled and the average speed.



You are able to select the dates for your report at the top as shown on the next page

Report for 9000588

Show report from06 JUN - 08 JUN

15:36:58 08 Jun

London Road Junction  
Bailbrook, Bath, Bath and North East Somerset, South West England, England, BA1 7HZ, United Kingdom

0.139 mi1.2 mph

15:43:01 08 Jun

A4, Bathampton  
Bath, Bath and North East Somerset, South West England, England, BA2 6SL, United Kingdom

0.093 mi1.2 mph

15:48:20 - 16:26:40 08 Jun

Bath Archers  
London Road West, Bailbrook, Bath, Bath and North East Somerset, South West England, England, BA1 7DD, United Kingdom

0.325 mi0.3 mph

16:32:09 - 18:00:50 08 Jun

Bathampton Manor  
Mill Lane, Bathampton, Bath and North East Somerset, South West England, England, BA2 6TS, United Kingdom

0.149 mi0.3 mph

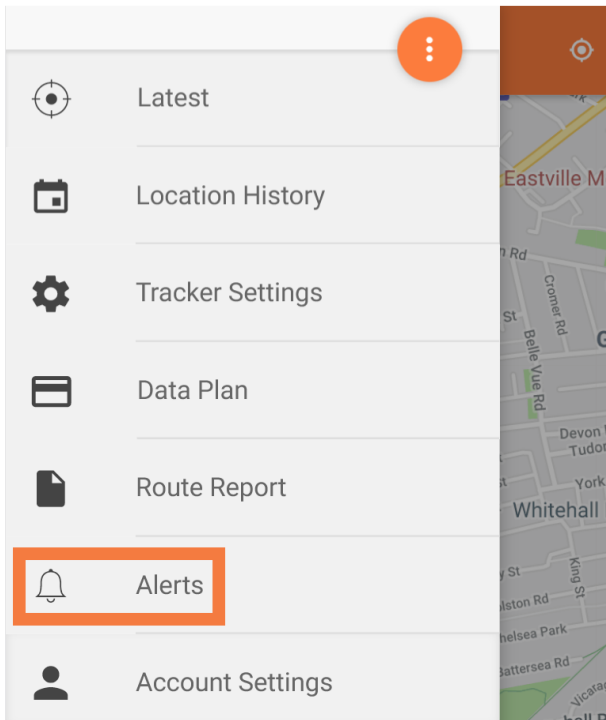
18:05:17 - 18:22:23 08 Jun

Bath Archers  
London Road West, Bailbrook, Bath, Bath and North East Somerset, South West England, England, BA1 7DD, United Kingdom

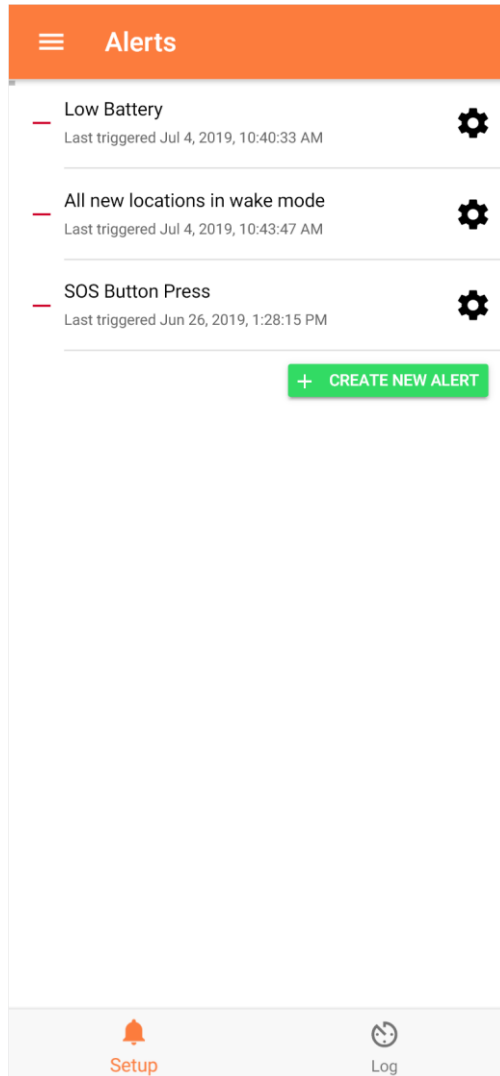
Your trip report should look like the following with the distance travelled at the bottom left of each section and the average speed on the bottom right.

## Alerts Tab

The Alerts Tab allows you manage your alerts and notifications. Here you can create alerts, edit existing alerts and customize how/when you would like to be notified.



After opening your Alerts Tab, you will see a full list of your alerts as shown on the next page



*What the buttons do:*



This will show you the log of your recent alerts.



This will allow you to edit an existing notification.



This icon, located on the left of each alert will allow you to delete a an alert

**Caution:** Some Alerts cannot be deleted and will be automatically generated. To disable these you will need to [edit the alert](#) and disable all the delivery methods.

### Creating new alerts:

Once inside your alerts tab you can create a new alert by selecting “CREATE NEW ALERT” button.

**Edit Alert** CANCEL SAVE

**Alert Name**

Notification 6

**Alert Type**

Geofence ☐

Motion ☐

All new locations ☐

New locations whilst moving ☐

Low Battery Alert ☐

**Delivery Type**

Email ☐

Push to phone ☒

**Mute this Alert for**

Below is a description on what each section does:



### 1) Naming your alert

Naming your alert will allow you to quickly identify it later. The name set will also be displayed on every notification you get relating to that alert.

Alert Name
Notification 6

### 2) Setting the alert type

There are quite a few alert types to choose from:

Alert Type	
Geofence	<input type="radio"/>
Motion	<input type="radio"/>
All new locations	<input type="radio"/>
New locations whilst moving	<input type="radio"/>
Low Battery Alert	<input type="radio"/>

Geofence alerts will trigger when your tracker sends a location update outside the set Safe Zone.

Motion alerts will trigger whenever the tracker moves or detects motion. [Motion sensitivity](#) can be adjusted under the advanced settings section.

**All new location alerts** will trigger whenever there is a new location update sent by the tracker regardless of motion.

**New locations whilst moving** alert will trigger when new locations updates are sent by the tracker but only when there is motion or movement.

**Low battery** alert will trigger when the battery level reaches 25%.

### *3) Setting the delivery methods*

Here you can set how you are notified.



**Delivery Type**

Email ☒

demo@\*\*\*\*\*

Push to phone ☒

Enabling Email alerts will allow you to set which email you would like to receive the alerts on.

Enabling Push to phone will send alerts in the form of notification to your smartphone.

**Caution:** Push to phone alerts do not work for the web portal, you will need to download the LightBug App on your smartphone in order for this to work.

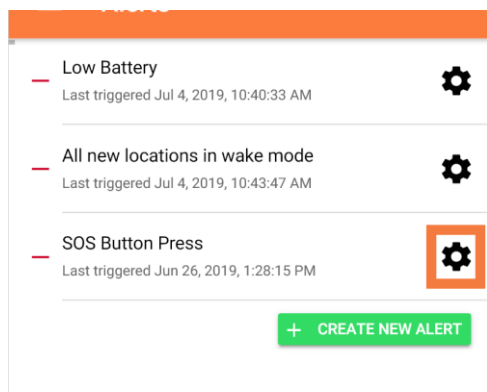
#### 4) *Setting how often you are notified*

Here you can mute a triggered alert for some time before the same alert is triggered again.



#### Editing Existing alerts:

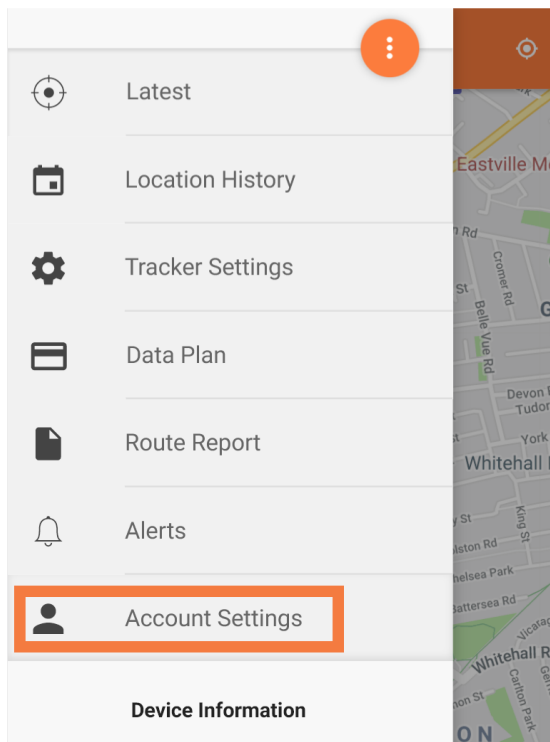
Once you are in the alerts tab, you can edit your alerts by pressing on the cog icon:



Then follow the instructions outlined in the [previous section](#).

## Account Settings Tab

This tab allows you to set account preferences, delete your data or change your password.



### Deleting your tracking history:

After ensuring you have selected the correct tracker, you can delete all your tracking history from this button:

Current Device (9000735)

---

DELETE ALL TRACKING DATA

### Account Preferences:

Here you can control how things are displayed on your App and inside specific tabs.

☐ **Use imperial units**  
(miles, mph...)

---

☐ **Hide approximate locations**  
Hide 'grey' GSM locations. On latest page this will hide n...

---

☐ **Disable "Switch to device" popup**  
For accounts with multiple devices

---


☐ **Show full address in map popups**  
Disable cropping of address to fit on single line

---

☐ **Only show current location**  
Hide previous locations from "Latest" view

---

**Number of points to show**  
Limit the number of points shown on the "Latest" view to 10



## Changing account password:

You can change your password in the account settings tab by scrolling all the way down to this section:

### Change Password

---

Current Password

New Password

Re-enter Password

SAVE

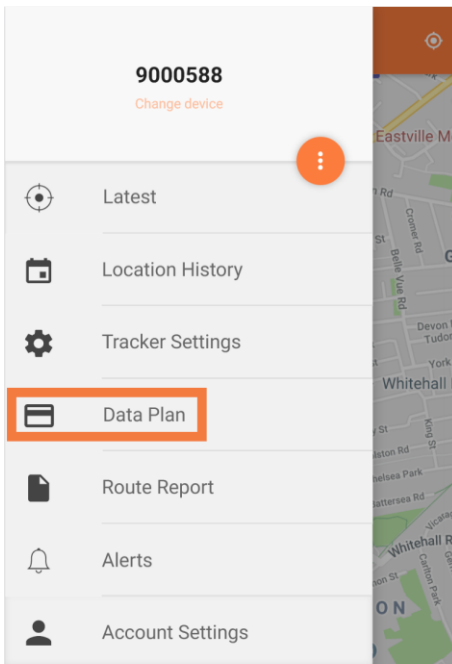
**Caution:** If you forgot your password or you are having any difficulty with this, contact us and we will do the needful.

## Deactivating Your Tracker

If you would like to stop the automatic billing in order to stop the monthly charges you need to follow these simple steps:

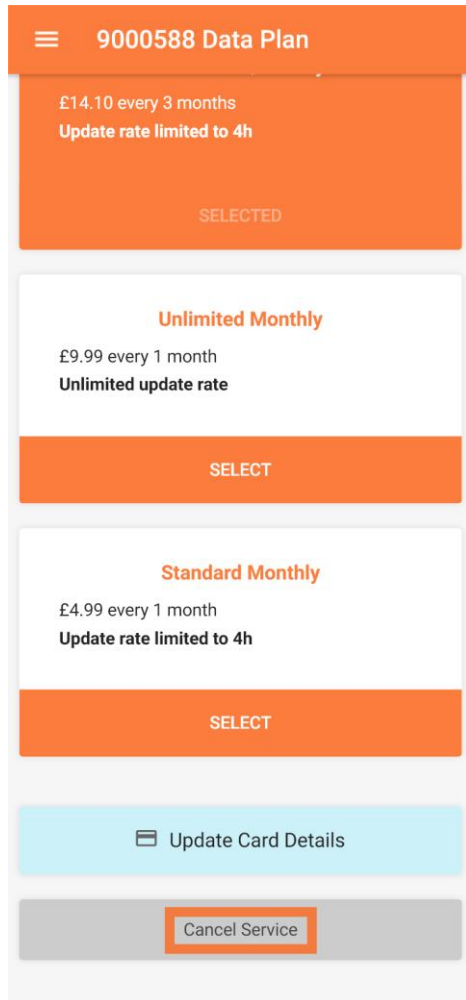
### Stopping Billing

First select the tracker you want to deactivate the billing for and then go to your Data Plan Tab:



This will open your active data plan and if you scroll all the way to the bottom you will see an option to cancel the service:





A popup will prompt you to confirm your selection before the service is cancelled.

## LED Indicators and Button presses

This section will outline what the different types of button presses are and how you can find out the battery status and the signal strength through the LEDs rather than the App.

### Battery and signal strength – Short button press

A quick press of the button on your tracker (less than one second) will show you the device status over 3 stages:

#### *Stage 1:*

Battery status will appear in stage one where the LED lights will turn on from left to right to indicate the current battery status.



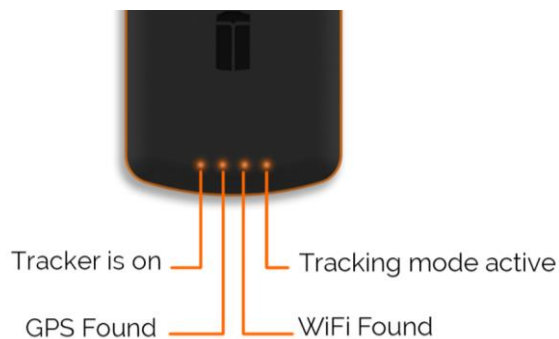
*Stage 2:*

Signal strength will appear in stage two where LED lights will turn on from right to left to indicate the 2G/4G signal strength.



*Stage 3:*

Additional information will appear in stage three where the LED lights will turn on to show the following:



## SOS / Force update – 1 to 3 second button press

Pressing the button for 1 to 3 seconds will force the tracker to connect, update settings and download any firmware updates.

This will also trigger an SOS alert if configured to do so via the LightBug App.



This mode will turn on the LEDs in a sequence from left to right.

## Device Reset – 10 second button press

If for any reason your tracker is not responding or is behaving oddly, you can reset your tracker by pressing and holding the button for 10 seconds.

**Hint:** Performing this reset will not affect your settings.

## How Things Work Under the Hood

### How the Location Technologies Work

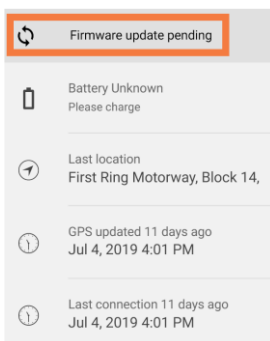
LightBug trackers utilize three location technologies in this order:

- 1) GPS location: This is the most accurate location type but it requires a direct line of sight with the sky to work. Meaning it will work best when outdoors or near windows that can see the sky. The accuracy is usually between 0.5 and 5 meters.
- 2) WPS (WiFi Positioning System) location: If GPS location fails the tracker will use any WiFi signals around to figure out its location. The accuracy is usually between 10-30 meters.
- 3) GSM location: This is the least accurate location type but it is the last resort if everything else fails. The tracker will use GSM towers and triangulate to give you a location update that can have an accuracy of 100-1000 meters.

## Firmware Updates

Firmware updates may be pushed periodically to your tracker as we continuously improve device performance and push for bug fixes.

You can tell if there is an update pending by the message below:



## How to Apply Updates

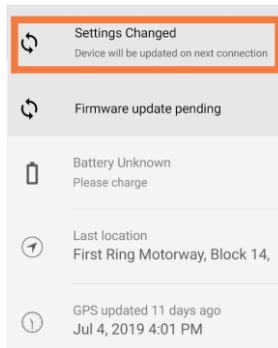
Updates should be applied automatically but in some cases you will need to keep your tracker on charge.

To confirm the update has been applied, the “Firmware update pending” message should no longer appear.

**Caution:** If your tracker LED (far left) is flashing continuously and the tracker is not responding it means the update is being downloaded and applied. We strongly advise you to place your tracker on charge in such a case.

## Settings Pending

After selecting new settings you may notice the following message:



## Applying Your Settings:

The new settings will be applied automatically the next time the tracker connects to send a new location update but you can speed up the process by pressing the tracker button for [1-3 seconds](#).

To confirm the settings have been applied, the “Settings Changed” message should no longer appear.

## Simple Troubleshooting

If for whatever reason your tracker is not responding or behaving as it should, you can reset the tracker by pressing and [holding the button for 10 seconds](#). This will not affect your settings.

### Why location updates are not instant?

Location updates are not instant in general as it takes time to get a GPS fix and if that fails the other location technologies come into action. After the location data is collected the tracker has to connect to the internet via the GSM network in order to send the location information.

### Why is my tracker not transmitting?

Always give your tracker a couple minutes to send a location update and if that fails you can try the following:

- Make sure you have an [active data plan](#) on your tracker
- Make sure your tracker is charged, some battery drain might have occurred for a number of reasons
- Force a location update ([hold tracker button for 3 seconds](#))
- Perform a reset ([hold tracker button for 10 seconds](#))
- Ensure the tracker is in an area with good GSM coverage

- Place the tracker outside for 5 minutes after completing all the above

### Why is my tracker giving inaccurate locations?

Location accuracy depend on a number of variable, please refer to [How the Location Technologies Work](#) section for more details on how these technologies work.

Generally speaking here are a few good practices that help improve the location accuracy of your tracker.

- Avoid surrounding your tracker with metals as they block GPS and GSM signals
- To allow for more GPS locations to occur, try to place your tracker somewhere with a good line of sight with the sky
- Try to place your tracker with the logo facing up
- Increase GPS timeout, please refer to manual configurations section and find out how to change the [GPS settings](#)
- Make sure you have the correct settings, you might need to tweak your [advanced settings](#). If you are unsure get in touch and we will assist!

### Why is my battery not lasting as long as advertised?

The advertised values are general guidelines, in reality there are many variables that affect battery life such as:

- Where the tracker is mounted: with a clear line of sight with the sky, the tracker will use less power per location update



- Is the tracker indoors? If the tracker is indoors more power will be used as the tracker will try to look for a GPS fix before attempting to locate itself via WPS or GSM. Find out more about this under [the How the location technologies work](#) section
- Make sure you have [WiFi](#) and [GPS Safe Zones](#) set up where applicable
- Motion sensitivity: it might be that your tracker is sending more location updates than it should because the motion sensitivity is too high. This usually occurs when the tracker is stationary but still sending location update. Reduce the motion sensitivity via your [advanced configurations page](#).

## **FCC Warning**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ -Reorient or relocate the receiving antenna.
- ▶ -Increase the separation between the equipment and receiver.
- ▶ -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ -Consult the dealer or an experienced radio/TV technician for help.

## **Specific Absorption Rate (SAR) information:**

This Lightbug Zero meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.

## **FCC RF Exposure Information and Statement**

The SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: Lightbug Zero (FCC ID: 2ATB2-ZERO) has also been tested against this SAR limit. The highest SAR value reported under this standard during product certification for use at the body is 0.914W/kg. the simultaneous transmission SAR value is 0.979W/kg on the body. This device was tested for typical body-worn operations with the back of the handset kept 5mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 5mm separation distance between the user's body and the back of the handset. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

## **Body-worn Operation**

This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 5mm must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.