

Introduction to testing - final exercise

Exploratory testing description

Tasked with testing part of the 'ThingsBoard cloud platform' website.

We have decided to focus on one dashboard 'fleet tracking'.

We will go through the testing tree and identify areas of focus, complete test cases bug reports and state our assumptions, perceived risks etc.

Testing Tree

Note: Testing starts from after fleet tracking installation - when presented with the dashboard front/starting page:

The screenshot shows the ThingsBoard Fleet tracking dashboard. On the left is a sidebar with various navigation options like Integrations, Roles, Customers hierarchy, User groups, Customer groups, Asset groups, Device groups, Profiles, Entity view groups, Edge groups, Edge management, Widgets Library, Dashboard groups (with sub-options All and Fleet tracking selected), OTA updates, and Scheduler. The main content area has a header 'Fleet tracking'. It contains two tables: 'Buses' and 'Bus tracking events'. The 'Buses' table lists four buses: Bus A (On route, 50.4 MPH, 32%), Bus B (On route, 26.8 MPH, 34%), Bus C (Broken, 0 MPH, 55%), and Bus D (Status: Refueling, Speed: 0 MPH). The 'Bus tracking events' table lists three events for Bus B: two critical speed limit violations and one general bus status update. To the right is a map of San Francisco showing the locations of the four buses with their respective status boxes. The map includes a legend for bus icons and a red marker for Bus C's location. The bottom right corner of the map says 'Powered by CARTO'.

- We are also not planning to test the general website - just the dashboard.

Main Areas to test and what to test in those areas

- 'Buses' metric (seen top left in screen above)
 - perceived role - to display the details of a specific bus after being clicked on - for this new page to be intractable
- 'Bus tracking events' metric (seen bottom left in screen above)
- 'Map View' metric (seen right in screen above)

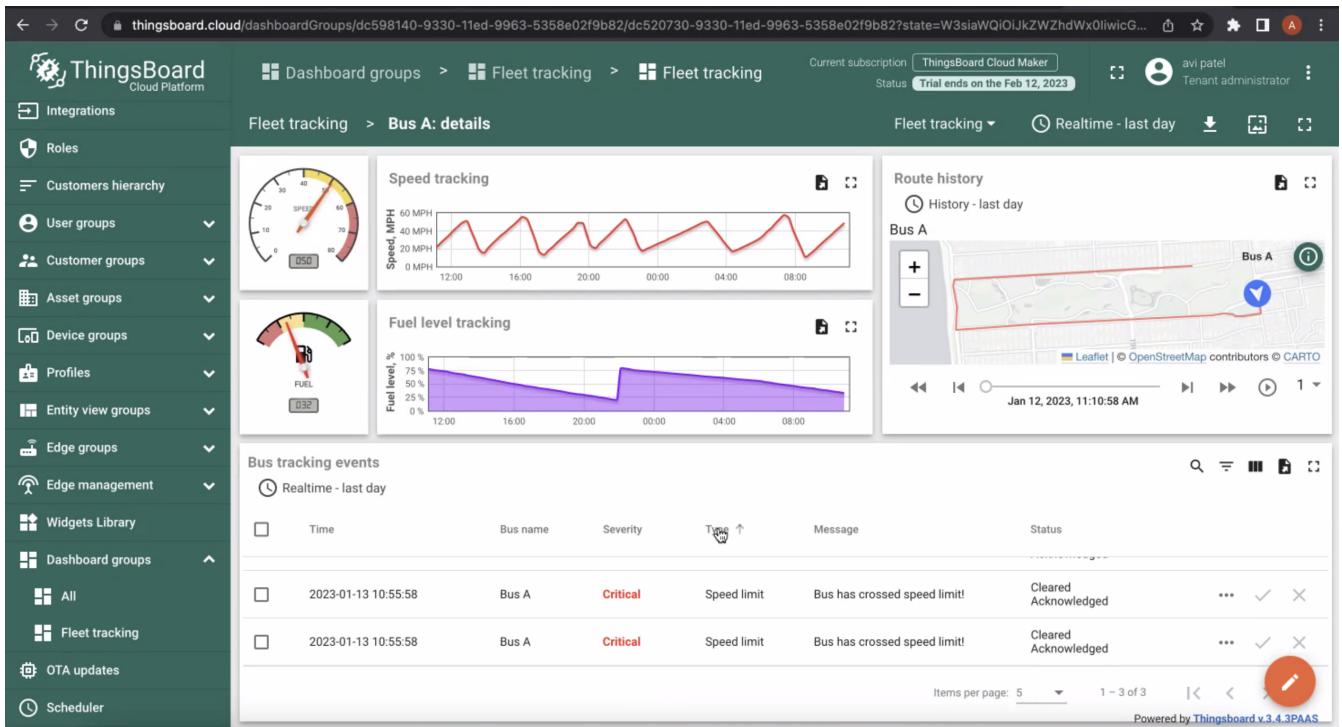
Example test cases with notes from exploration

Test purpose

To test the use of the 'buses' metric as a general first time user might click through.

Steps

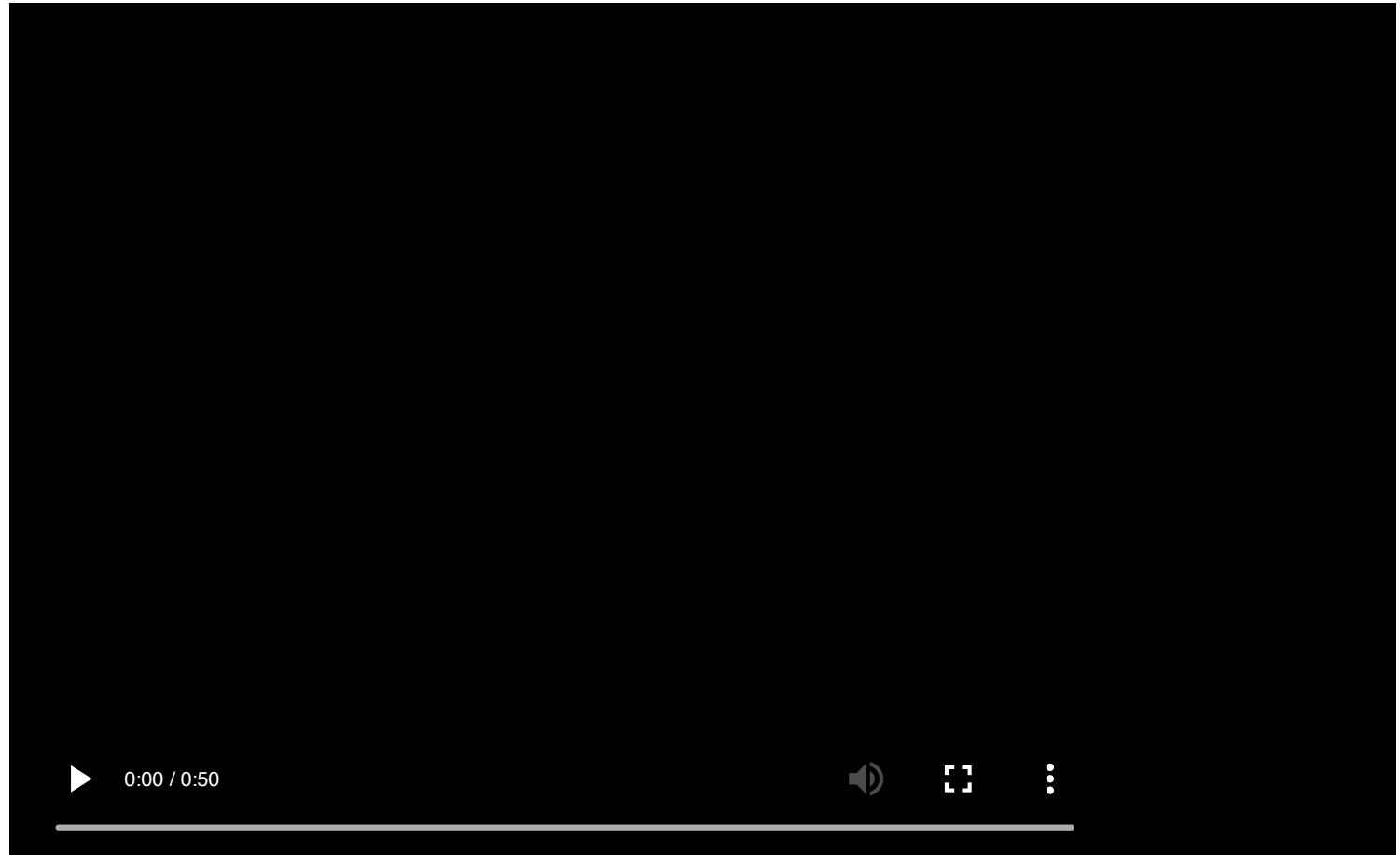
- from start page above click on Bus A
- We are presented with the Bus A: Details page



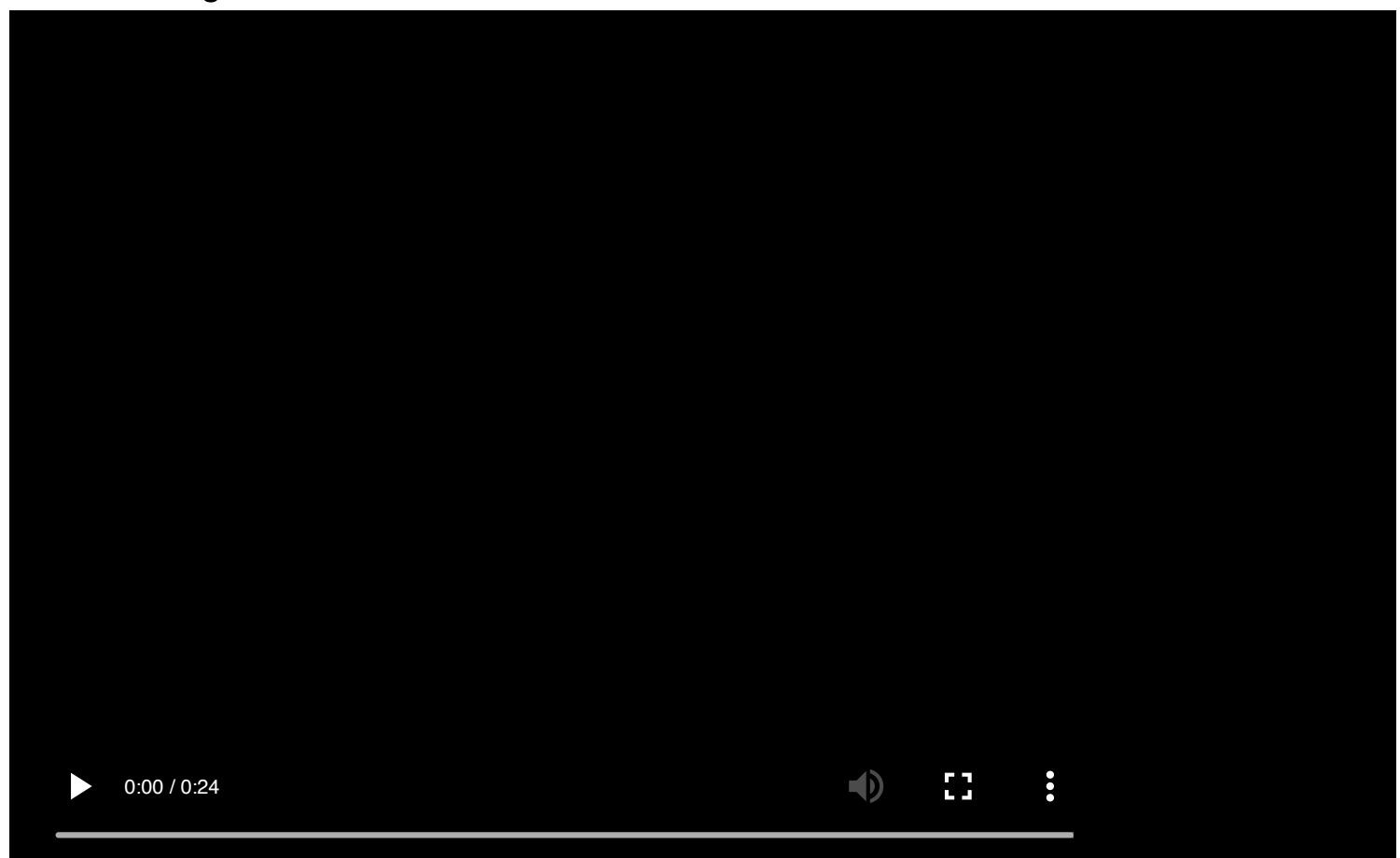
- Clicked through 'bus tracking events' section - all filters and buttons appear to work
 - search works
 - filters work
 - '...' buttons to the right of the 'events' shows further details
- the 'Route history' section of this
 - and - work
 - scroll works
 - 'i' button toggles further information, but does not scale to page size necessarily
 - the 'skip' and fast-forward buttons appear to be the wrong way round
 - play button is very, very slow and can only scale up to 25x
 - the route history playing has not linked with the other metrics on this page
- speed tracking
 - the speed graph when at 0 shows -1mph
- fuel level tracking
 - the graph when the bus has 100% shows up to 150%, this is not possible

- Live speed and fuel gagues are

Example usage:



Video of usage



Main unexpected functionality

- the fast-forward button and skip buttons do not seem to function correctly
- the graph when the bus has 100% shows up to 150%, this is not possible
- the speed graph when at 0 shows -1mph

Test purpose

To test intractability on the 'main page'

The screenshot shows the ThingsBoard Fleet tracking dashboard. On the left, there's a sidebar with various navigation options like Integrations, Roles, Customers hierarchy, User groups, Customer groups, Asset groups, Device groups, Profiles, Entity view groups, Edge groups, Edge management, Widgets Library, Dashboard groups (with sub-options All and Fleet tracking selected), OTA updates, and Scheduler. The main content area has a header 'Fleet tracking' with sub-sections 'Buses' and 'Bus tracking events'. Under 'Buses', there's a table with columns: Bus name, Status, Speed, Fuel level. It lists four buses: Bus A (On route, 50.4 MPH, 32%), Bus B (On route, 26.8 MPH, 34%), Bus C (Broken, 0 MPH, 55%), and Bus D (Status: Refueling, Speed: 0 MPH). Below the table are pagination controls for items per page (10) and page numbers (1-4 of 4). Under 'Bus tracking events', there's a table with columns: Time, Bus name, Severity, Type, Message, Status. It shows three entries from 2023-01-13: Bus B crossed speed limit twice (Severity Critical) and Bus C had a speed issue (Severity Speed). Below this table are similar pagination controls. To the right, there's a map of San Francisco showing the locations of the four buses. Each bus is marked with a green or red pin and a callout box showing its status and speed. The map also includes street names like Lombard Street and Van Ness Ave. At the bottom right of the map, there's a red circular button with a pencil icon.

Steps

- zooming map is fine
- filtering works here - you can actually filter so that nothing shows - i.e. unchecking all the boxes
- Clicked on the buttons and filters in the bus tracking events and buses metrics on this page

Main unexpected functionality

- filtering seems to not show selected filter
 - this does work when you have selected a specific bus however
- Report viewing / analytical view is not clear

- not particularly user-friendly - no tutorial or guide popups
- data displayed was sometimes unclear

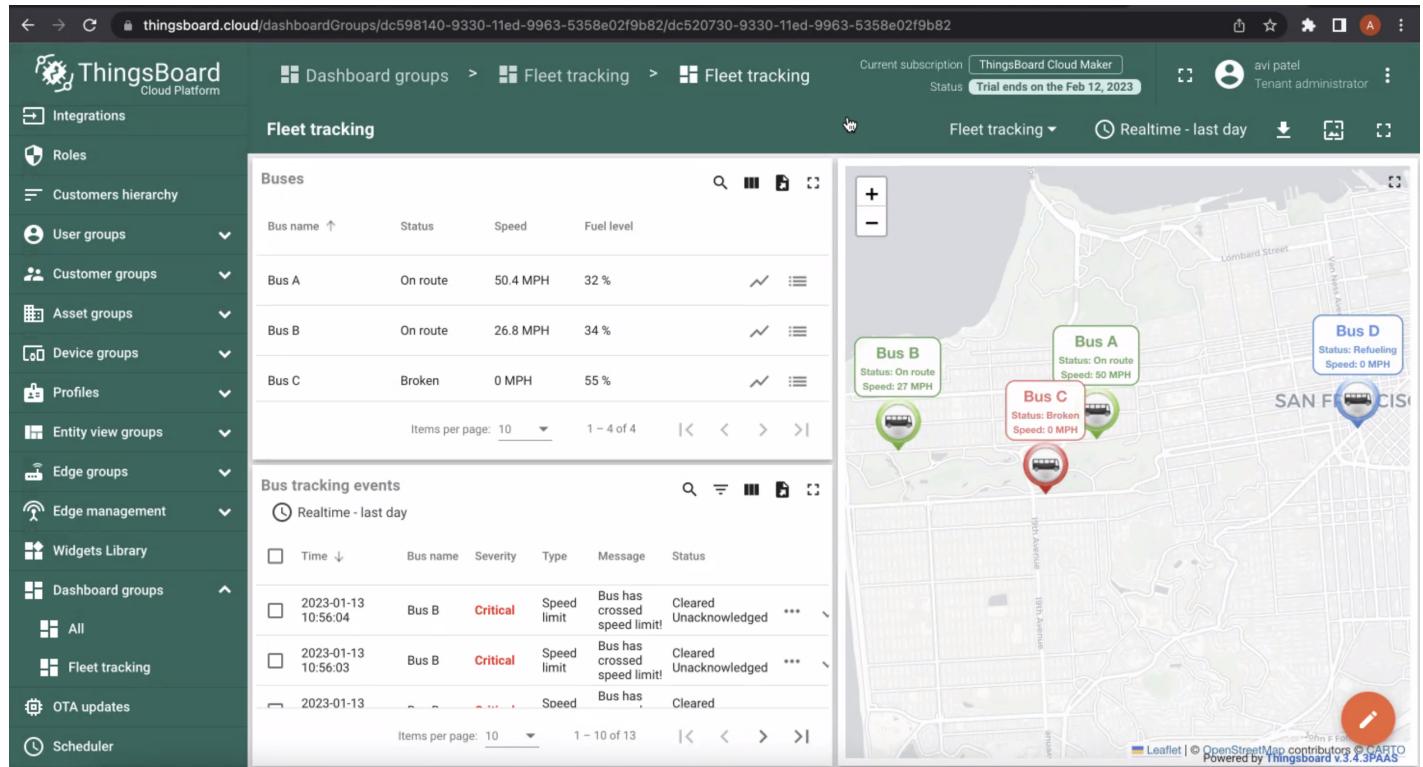
Bug report examples

Description

When viewing the dashboard/front page and adjusting the filters - it does not appear to change any of the content

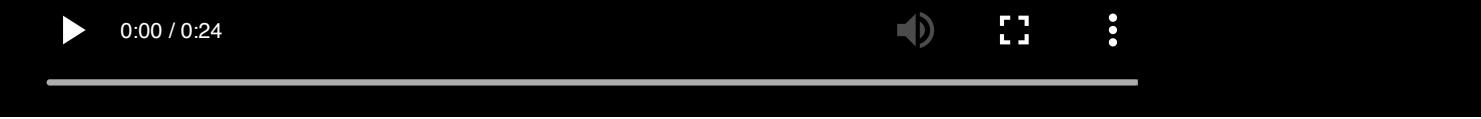
Steps to reproduce

1. navigate to the starting page



The screenshot shows the ThingsBoard Cloud Platform interface. The left sidebar contains navigation links for Integrations, Roles, Customers hierarchy, User groups, Customer groups, Asset groups, Device groups, Profiles, Entity view groups, Edge groups, Edge management, Widgets Library, Dashboard groups (with sub-options All and Fleet tracking selected), OTA updates, and Scheduler. The main content area is titled 'Fleet tracking' and displays two sections: 'Buses' and 'Bus tracking events'. The 'Buses' section lists four buses: Bus A (On route, 50.4 MPH, 32% fuel), Bus B (On route, 26.8 MPH, 34% fuel), Bus C (Broken, 0 MPH, 55% fuel), and Bus D (Status: Refueling, Speed: 0 MPH). The 'Bus tracking events' section shows three critical speed limit events for Bus B on January 13, 2023, at 10:56:04, and one speed event for Bus C on the same date. To the right is a map of San Francisco with icons for each bus, showing their current locations and status. The map includes street names like Lombard Street and Market Street.

2. Click on the filter 'real-time - last X days'
3. Adjust that filter
4. Notice none of the metrics change



0:00 / 0:24



Expectations are that adjusting this would have some effect on the data displayed

Speculation is that being in a different time-zone might have some effect on this

Severity

Medium - it does not break anything - however it is a function that appears to not be doing anything at the moment

Priority

Low - this is not breaking the application, but would be better if improved upon.

Description 2

When viewing the bus details on the bus details page(s). The analytics sometimes show unrealistic data:

- the graph when the bus has 100% shows up to 150%, this is not possible
- the speed graph when at 0 shows -1mph

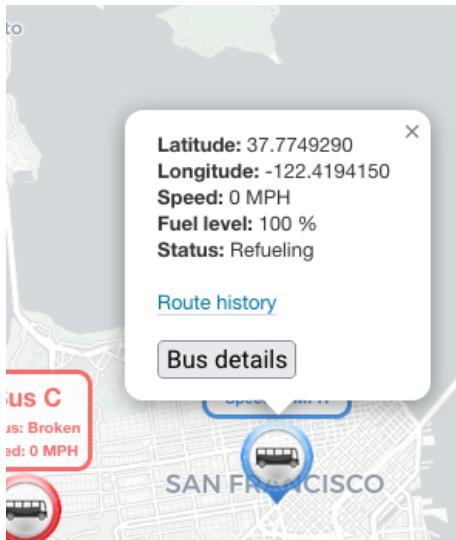
This is not good as it is clearly not possible, this will likely lead to the customer not placing trust in the application for its accuracy.

Steps to reproduce

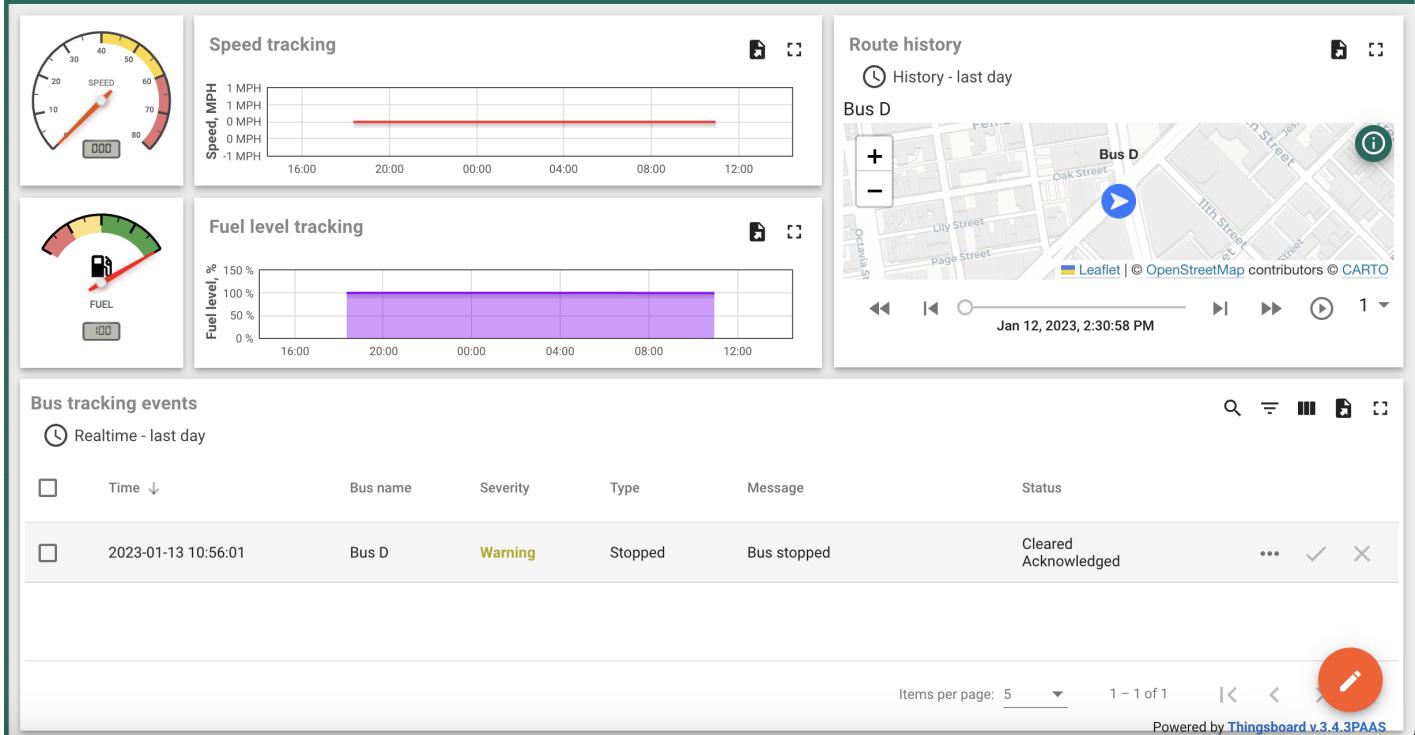
1. navigate to the starting page

The screenshot shows the ThingsBoard Cloud Platform interface. The left sidebar is titled "Fleet tracking" and contains sections for Integrations, Roles, Customers hierarchy, User groups, Customer groups, Asset groups, Device groups, Profiles, Entity view groups, Edge groups, Edge management, Widgets Library, Dashboard groups (with sub-options All and Fleet tracking selected), OTA updates, and Scheduler. The main content area has a header "Fleet tracking". It displays two tables: "Buses" and "Bus tracking events". The "Buses" table lists four buses: Bus A (On route, 50.4 MPH, 32% fuel), Bus B (On route, 26.8 MPH, 34% fuel), Bus C (Broken, 0 MPH, 55% fuel), and Bus D (Refueling, 0 MPH, 100% fuel). The "Bus tracking events" table lists three entries for Bus B, all of which are critical speed limit violations. A map of San Francisco shows the locations of the buses. The bottom right corner of the map says "Powered by Thingsboard v.3.4.3PAAS".

2. Click on Bus D on the map and then click on 'Bus details' when it pops up



3. The display under 'Speed tracking' and 'Fuel level tracking' show impossible information



Expectations are that 150% is not possible and that 100% should be the maximum

And that the speed can only go as low as 0 not down to -1

Severity

Low - the data is likely still accurate - it is just that it looks not quite as good as it should

Priority

Low - this is not breaking the application, but would be better if improved upon.

Risks

- Some data seemed inconsistent - risk is that this leaves the customer unclear of the accuracy of the tool
- Way to track property - security is a concern
- maybe also a safety risk as a result

Assumptions

- That we have limited time and resource to test much functionality

- the dashboard time stamps in various sections seem to be a bit hit and miss - some of which seem to line up with when we installed the board. Since this is a demo dashboard for showcasing the functionality - we are assuming that these time stamps would function correctly when used by a customer.
- That this is an accurate representation of real use
- that the user can get to the starting point highlighted above

Questions

Stating who for

- For the 'seller of this tool'
 - Who is it aimed at
 - what onboarding do you offer
 - purchasing options
 - How much needs to be set up by the customer?
 - how often is the platform updated? etc
- If there is some functionality that is not representative of real use - should this be highlighted as such more clearly?

Diagram

Dashboards/front starting page

The screenshot shows a fleet tracking dashboard interface. At the top, a navigation bar indicates the user is in 'Dashboard groups' > 'Fleet tracking' > 'Fleet tracking'. The top right shows a trial subscription ending on Feb 12, 2023, and the user 'avi patel' as a tenant administrator. Below the navigation, a title 'Fleet tracking' is followed by a dropdown 'Fleet tracking ▾' and a filter 'Realtime - last 30 days' with download and print icons.

The main area is divided into two sections: 'Buses' and 'Bus tracking events'.

Buses: A table showing bus names, statuses, speeds, and fuel levels. Bus A is On route (50.4 MPH, 32% fuel), Bus B is On route (26.8 MPH, 34% fuel), and Bus C is Broken (0 MPH, 55% fuel). A note at the bottom says 'Items per page: 10 1 – 4 of 4'.

| Bus name | Status | Speed | Fuel level |
|----------|----------|----------|------------|
| Bus A | On route | 50.4 MPH | 32 % |
| Bus B | On route | 26.8 MPH | 34 % |
| Bus C | Broken | 0 MPH | 55 % |

Bus tracking events: A table showing recent events. The first event for Bus B on 2023-01-13 at 10:56:04 is marked as Critical: Speed limit crossed speed limit! (Status: Cleared, Unacknowledged). Other rows show similar events for Bus B and Bus A.

| Time | Bus name | Severity | Type | Message | Status |
|---------------------|----------|----------|-------------|------------------------------|---------------------------|
| 2023-01-13 10:56:04 | Bus B | Critical | Speed limit | Bus has crossed speed limit! | Cleared Unacknowledged |
| 2023-01-13 10:56:03 | Bus B | Critical | Speed limit | Bus has crossed speed limit! | Cleared Unacknowledged |
| 2023-01-13 | - | - | Speed | Bus has | Cleared |

Map: A map of San Francisco showing the locations of the four buses. Bus B is green (On route), Bus A is green (On route), Bus C is red (Broken), and Bus D is blue (Refueling). Callouts provide detailed status information for each bus.

Map details: The map shows the city of San Francisco with a legend for bus icons. A callout for Bus B says 'Status: On route Speed: 27 MPH'. A callout for Bus A says 'Status: On route Speed: 0 MPH'. A callout for Bus C says 'Status: Broken Speed: 0 MPH'. A callout for Bus D says 'Status: Refueling Speed: 0 MPH'.

Page footer: Leaflet | © OpenStreetMap contributors | Powered by Thingsboard v.3.4.3PaaS

Click

Bus A - Details Page

ThingsBoard Cloud Platform

Dashboard groups > Fleet tracking > Fleet tracking

Current subscription: ThingsBoard Cloud Maker
Status: Trial ends on the Feb 12, 2023

Adam Little Tenant administrator

Fleet tracking > Bus A: details

Route history

History - last day

Bus A

Map showing the route of Bus A in San Francisco, California, with a red line indicating the path and a blue dot marking the current location.

Speed tracking

Speed MPH

Speed MPH

0 MPH 25 MPH 50 MPH 75 MPH 100 MPH

16:00 20:00 00:00 04:00 08:00 12:00

Fuel level tracking

Fuel level %

100% 80% 60% 40% 20% 0%

16:00 20:00 00:00 04:00 08:00 12:00

Bus tracking events

Realtime - last day

| | Time | Bus name | Severity | Type | Message | Status | Actions |
|--------------------------|---------------------|----------|----------|-------------|-------------------------------------|------------------------|---------|
| <input type="checkbox"/> | 2023-01-13 10:44:17 | Bus A | Critical | Speed limit | Bus has crossed speed limit! | Cleared Unacknowledged | ... ✓ ✘ |
| <input type="checkbox"/> | 2023-01-13 10:44:17 | Bus A | Major | Low fuel | Fuel level is back to normal: 80.0% | Cleared Unacknowledged | ... ✓ ✘ |
| <input type="checkbox"/> | 2023-01-13 10:44:16 | Bus A | Critical | Speed limit | Bus has crossed speed limit! | Cleared Unacknowledged | ... ✓ ✘ |

Items per page: 5 | 1 - 3 of 3 | Edit | Delete