

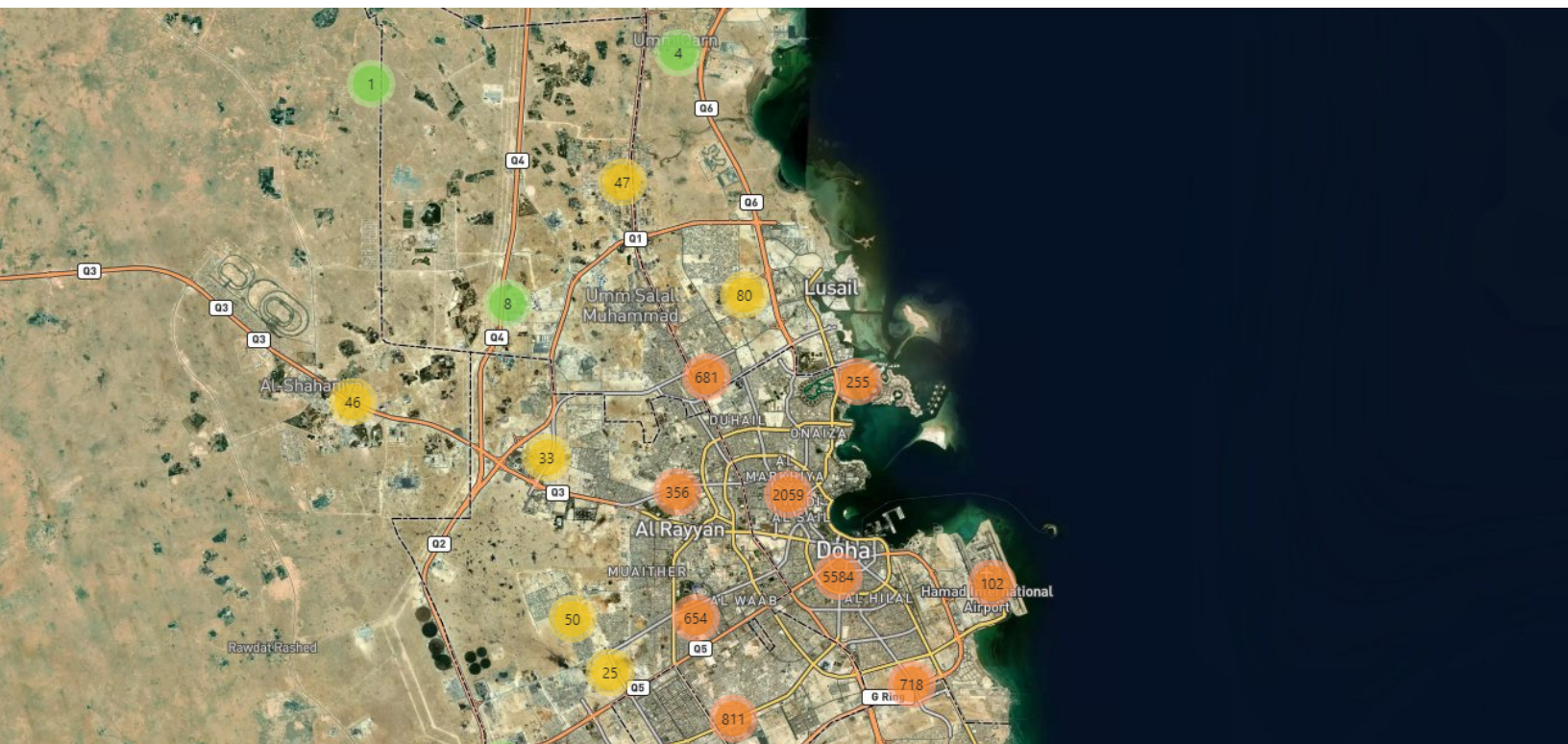
Simulation Report

This document analyzes the movement of 10 devices across different cities in Lebanon between 2021-04-02 and Not Available. The analysis reveals various patterns and links between the behaviors of the devices, providing insights into their movement and activity.



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Introduction

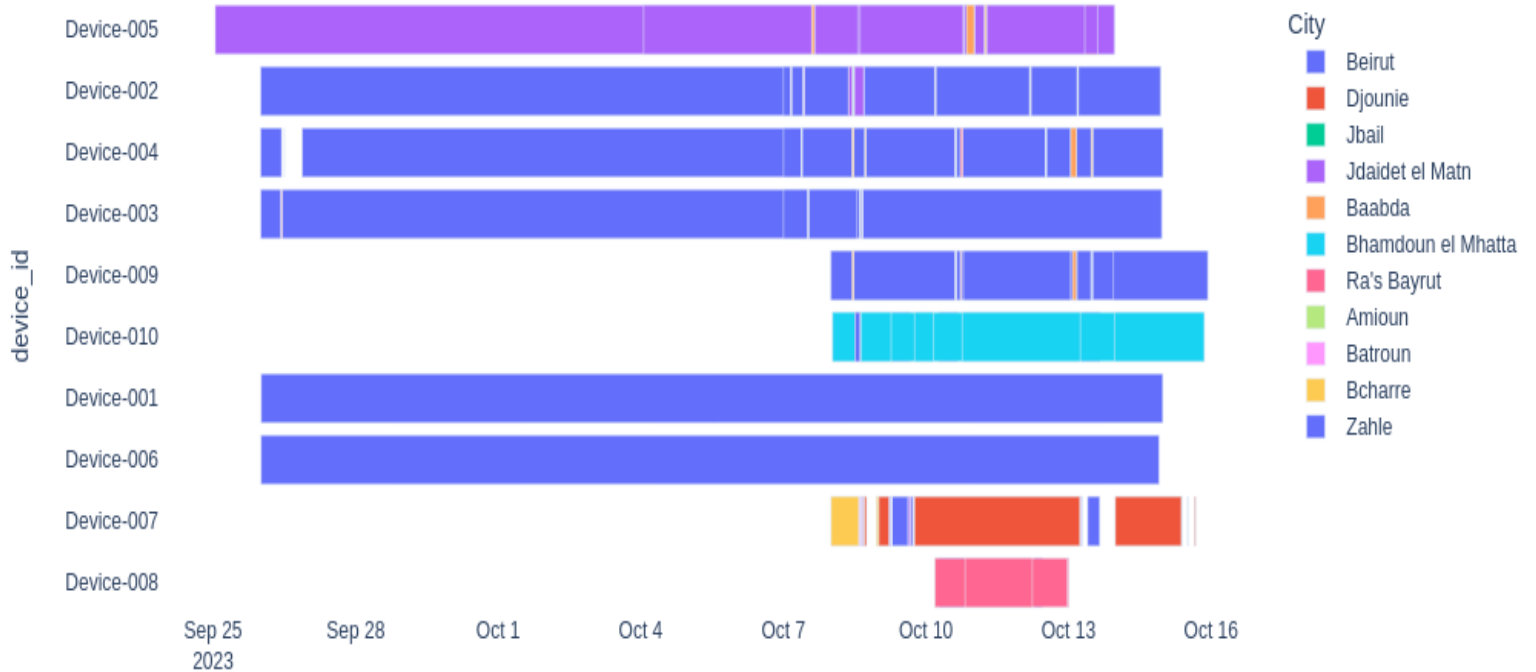
The Device History type provides users with the flexibility to select any Area of Interest and input device IDs for analysis. This report presents a Device History simulation, named Ras Beirut simulation, which was performed between 2021-04-02 and Not Available for 10 devices that passed through Lebanon.

Statistic	Data
Number of Devices	10
Number of Records	16394
Number of Days	14
Countries	Lebanon
Cities Number	11

Analysis of Device Movement

- 1. **Device-001:** Moved between cities in Beirut, spending 18 days and 23 hours in the city.
- 2. **Device-002:** Moved between cities in Beirut, spending a total of 11 days and 22 hours in the city, with multiple short trips.
- 3. **Device-003:** Moved between cities in Baabda and Beirut, spending a total of 11 days and 1 hour in the cities.
- 4. **Device-004:** Moved between cities in Baabda, spending a total of 0 days and 3 hours in the city, with multiple short trips.
- 5. **Device-005:** Moved between cities in Baabda and Beirut, spending a total of 0 days and 4 hours in the cities.
- 6. **Device-006:** Moved between cities in Beirut, spending 18 days and 21 hours in the city.
- 7. **Device-007:** Moved between cities in Amioun, Batroun, Bcharre, and Beirut, spending a total of 1 day and 22 hours in the cities.
- 8. **Device-008:** Moved between cities in Beirut and Ra's Bayrut, spending a total of 4 days and 12 hours in the cities.
- 9. **Device-009:** Moved between cities in Baabda and Beirut, spending a total of 2 days and 10 hours in the cities.
- 10. **Device-010:** Moved between cities in Beirut and Bhamdoun el Mhatta, spending a total of 3 days and 12 hours in the cities.

Duration at Location per Day of Week

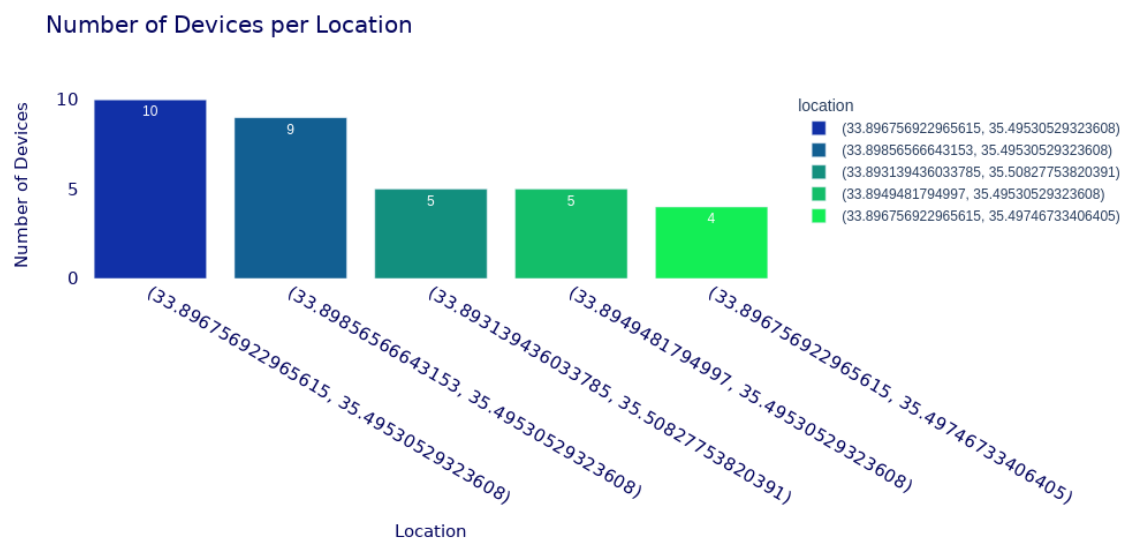


- Upon analyzing the movement of the devices, several patterns and links can be observed:
- Devices 001, 002, 003, 006, and 010 spent a significant amount of time in Beirut, indicating a possible hub of activity.
- Devices 004, 005, and 009 moved frequently between Baabda and Beirut, suggesting a connection between the two cities.
- Devices 007 and 008 moved between multiple cities, indicating a more dispersed pattern of movement.

- Devices 002, 004, 005, and 009 made multiple short trips between cities, suggesting a high level of activity.

Common Location Descriptions

- At grid location (33.896756922965615, 35.49530529323608), there are 10 devices with IDs: Device-002, Device-003, Device-006, Device-007, Device-008, Device-001, Device-004, Device-005, Device-009, Device-010.
- At grid location (33.89856566643153, 35.49530529323608), there are 9 devices with IDs: Device-002, Device-003, Device-004, Device-006, Device-007, Device-008, Device-005, Device-009, Device-010.
- At grid location (33.893139436033785, 35.50827753820391), there are 5 devices with IDs: Device-007, Device-004, Device-005, Device-009, Device-010.
- At grid location (33.8949481794997, 35.49530529323608), there are 5 devices with IDs: Device-003, Device-006, Device-002, Device-004, Device-010.
- At grid location (33.896756922965615, 35.49746733406405), there are 4 devices with IDs: Device-001, Device-002, Device-003, Device-007.



Device Co-location Analysis

The analysis reveals that the devices exhibit a high frequency of co-location, with multiple devices frequently appearing together at the same locations. The duration of stays at these locations varies, but recurring patterns emerge, indicating a strong correlation between the devices' movements. Notably, Devices 002, 003, 004, 005, 006, 007, 008, 009, and 010 consistently appear together at the same locations, suggesting a strong connection between these devices. Devices 001 and 007 also frequently co-locate, but with less frequency than the other devices. The most prominent pattern observed is the frequent co-location of devices at grid locations (33.896756922965615, 35.49530529323608) and (33.89856566643153, 35.49530529323608), with up to 10 devices present simultaneously. This suggests a significant hub of activity or a common gathering point for these devices.

Significance of Locations

The analysis suggests that these locations hold significant importance for the devices' activities. The high frequency of co-location and recurring patterns indicate that these locations serve as key meeting points, hubs, or areas of interest for the devices. The concentration of devices at grid locations (33.896756922965615, 35.49530529323608) and (33.89856566643153, 35.49530529323608) implies that these areas may be of particular importance, possibly serving as central points for the devices' operations or interactions. The presence of multiple devices at these locations raises questions about the nature of their activities and the potential relationships between the devices. Further investigation is warranted to uncover the underlying purposes and implications of these co-location patterns.

Conclusion

This analysis provides insights into the movement and activity of 10 devices across different cities in Lebanon. The patterns and links observed suggest a complex network of activity, with devices moving between cities and spending varying amounts of time in each location. These findings can inform further investigation and analysis of the devices' behavior

DeviceID Mapping Table

Original ID	Simplified ID
E0222C00-CE50-4B7F-AE50-20880871EA9B	Device-001
bb9448a9-edf8-45ef-acab-f0b0be8df09c	Device-002
85f30053-af3c-4a92-a281-ab3b3e71b9ff	Device-003
af8994db-e0ee-47b0-a8cb-eb18997250fd	Device-004
08493fef-9645-4062-956f-7ee273362aa3	Device-005
24ef5d95-9533-410c-a491-9590d12af10d	Device-006
e943a632-5936-4e48-a3d3-adba829ea3c1	Device-007
A7DC7355-4209-49F0-A8FE-3DEC3C0877FA	Device-008
df4118ac-e0ee-42c0-a4bc-ec34772590fa	Device-009
3e8d236a-a230-46e2-ab97-f01786ab76df	Device-010