VCIS Enhancing DRC Security and Law Enforcement via Geospatial Insights and Predictive Analytics

By integrating geographic data and machine learning algorithms, VCIS enables rapid information collection, threat pattern identification, and prediction of potential criminal activities. This document explores the transformative capabilities of VCIS, including its geofencing tool for efficient border management, digital records tracing for informed decision-making, and map visualization functionalities for enhanced understanding and prediction of various scenarios.

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Introduction

VCIS is a process-based system that uses map exploration to enable authoritative intelligence. By integrating geographic data, such as demographics, traffic and investigation, into a smart map or dashboard, organizations can use intelligence tools to identify the location and cause of an event and gain insight into what caused it. Our platform enables rapid collection and integration of information for analysis to identify threat patterns, track assets, uncover hidden trends, discover relationships, and provide enhanced dissemination. VCIS, utilizing machine learning algorithms, has the potential to predict potential crimes by analyzing data and identifying patterns that suggest criminal activity.

Geofencing tool is a "*should have*" solution for governance and law enforcement when the subject is painful and less efficient for human interventions especially where multiple borders exist with different countries, rivers, suspicious cases etc.
Digital Records and footprint tracing ease and facilitate the decision making to take the necessary actions on time, by analyzing and by predicting different aspects, following different cases such:

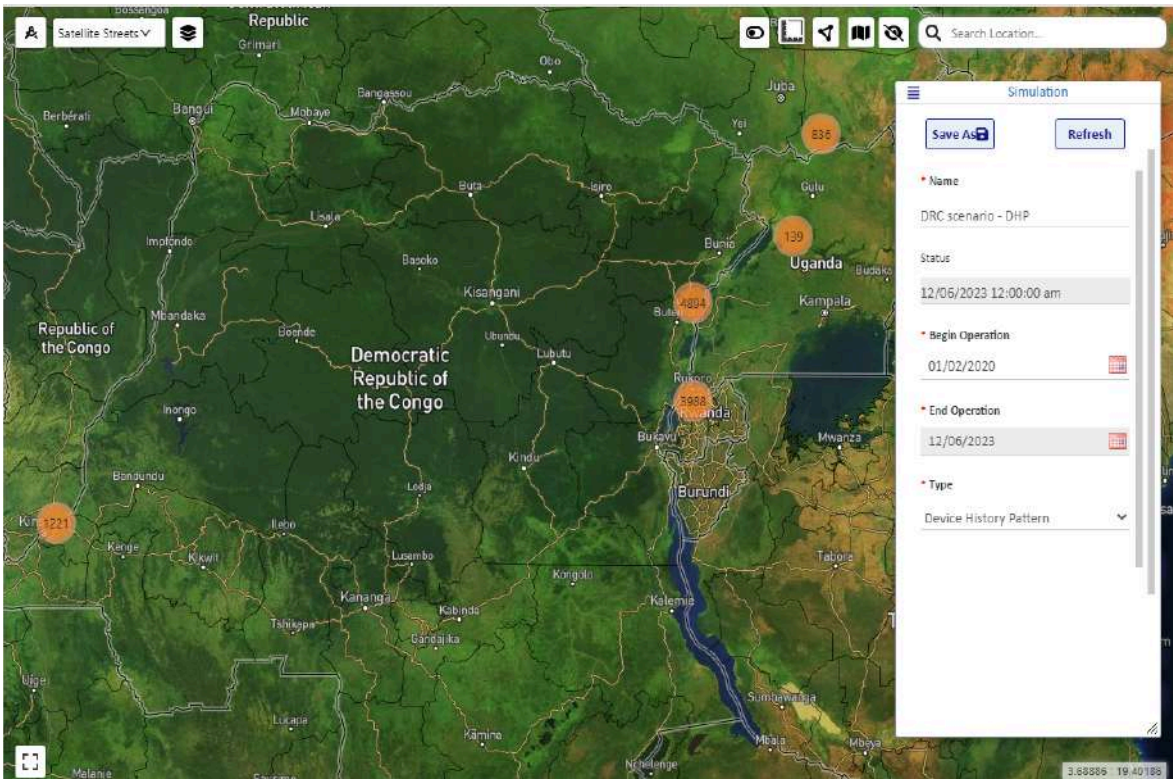
- Informal cross-border behavior
- Refugees and Returnees
- Perceptions of viruses and healthcare
- Tensions and armed groups
- Political Crisis
- Terorrism

Map Visualization and functionalities
Geospatial data analysis enhances understanding, insight, decision-making, and prediction. By integrating geographic data, such as demographics, traffic, and investigation, into a smart map or dashboard, organizations can use intelligence tools to identify where an event has occurred, understand why it is happening, and gain insight into what caused it.
Map Explorer includes many query/simulation types based on the test case:

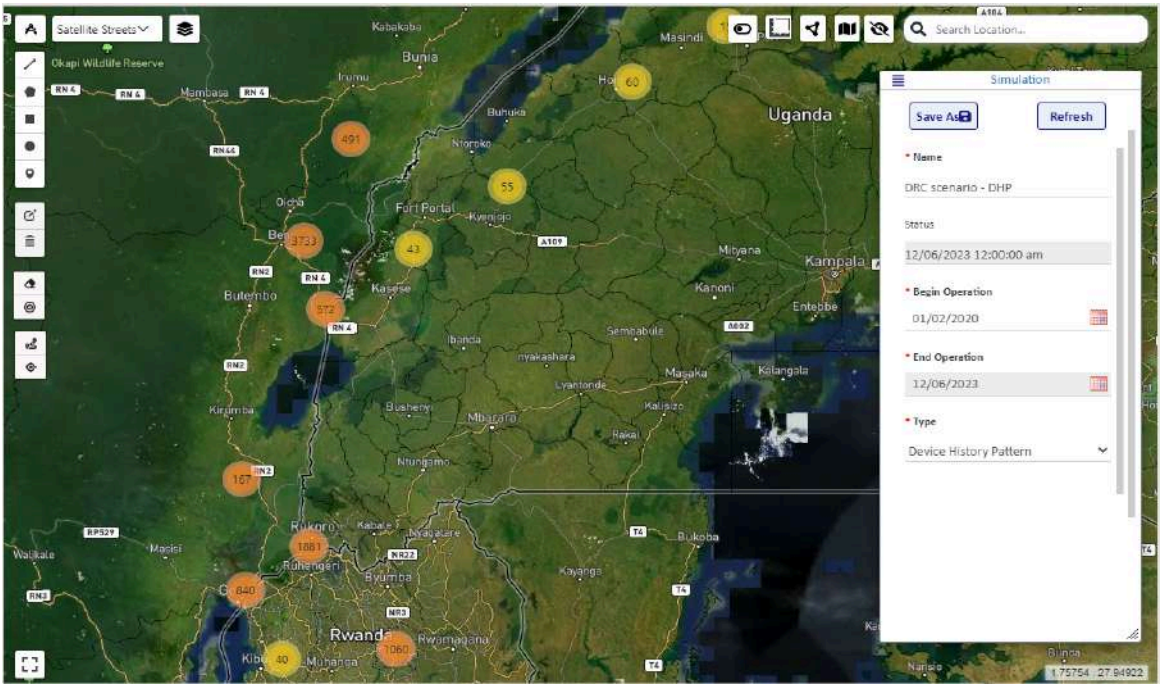
- Activity scan: Detecting activity in a defined date and time.
- Device history: Historical trajectory of a certain device/s.
- Device travel pattern: Retrieving common devices between two or more locations.
- Device history pattern: Historical trajectory of all devices available in a certain area.
- POI (Point Of Interest): Detecting two or more devices intersect and overlap during a defined period.
- Fixed Element Activity scan: Activity visualization around predefined fixed elements such as CCTV, BTS and ATMs.
- TCD History: Telecommunication information view for certain device/s.

Scenario

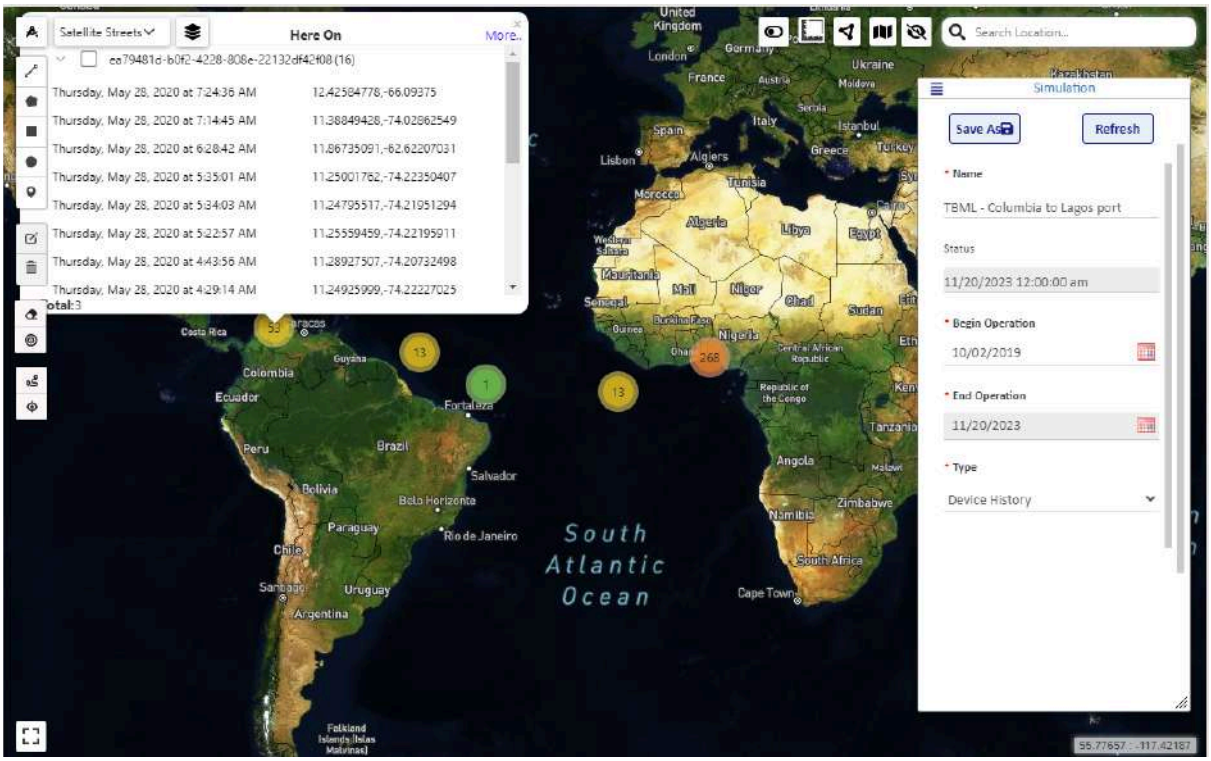
Visualization of current activities, past behaviors and future Prediction



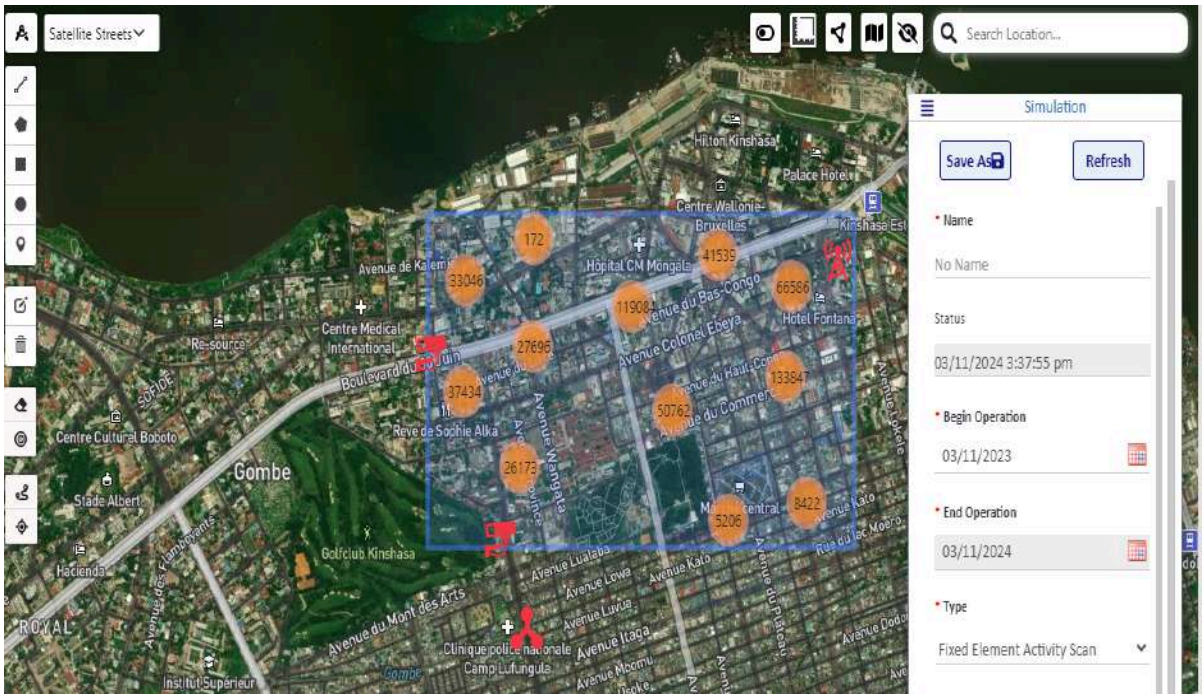
Trajectory Between DRC-Rwanda-Uganda-South Sudan



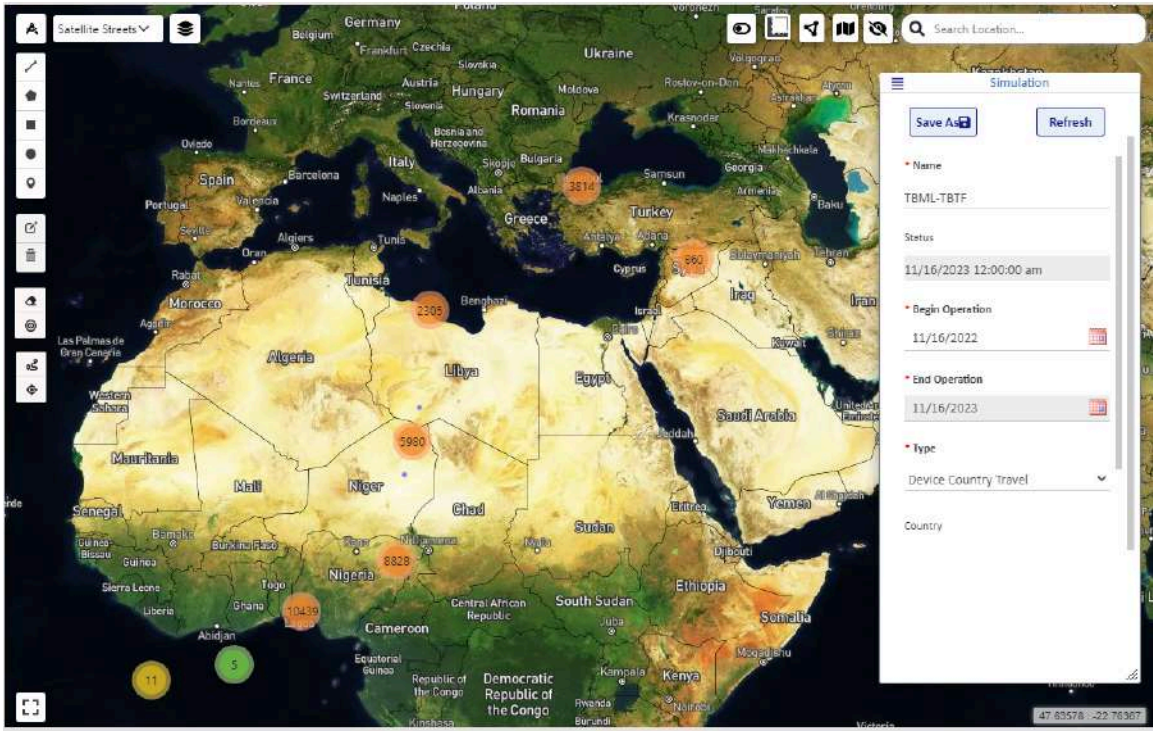
Tracing Activity between smuggling areas by the coast



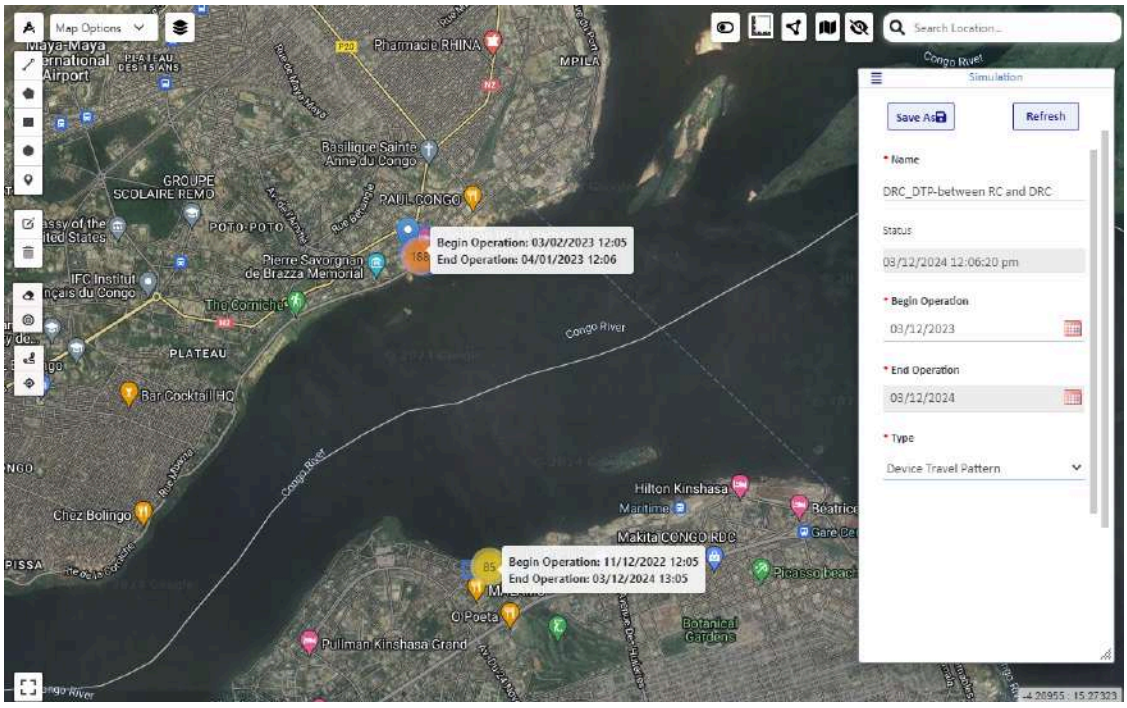
Fixed Elements Activity scan (This simulation returns the fixed elements such as BTS, CCTV, ATM… in addition to the existing activities occurrences)

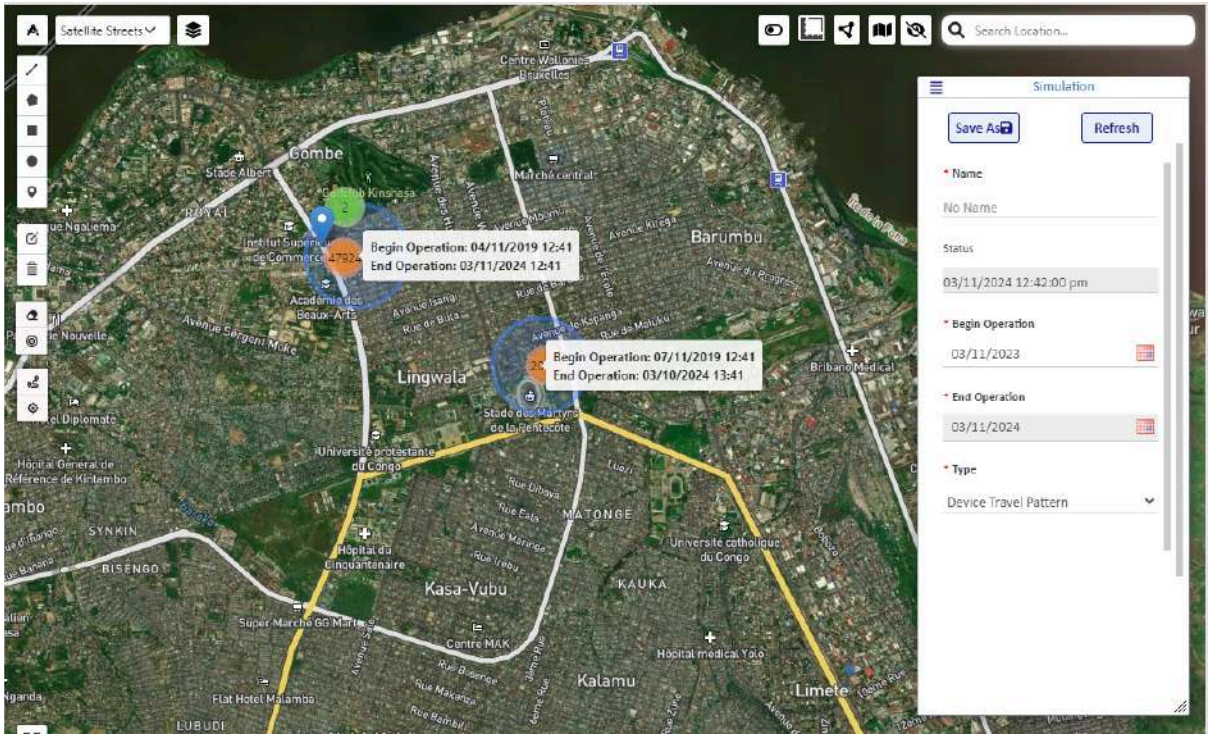


“Device Country Travel” simulation used to trace suspicious devices pass by high risk/Sanction Areas

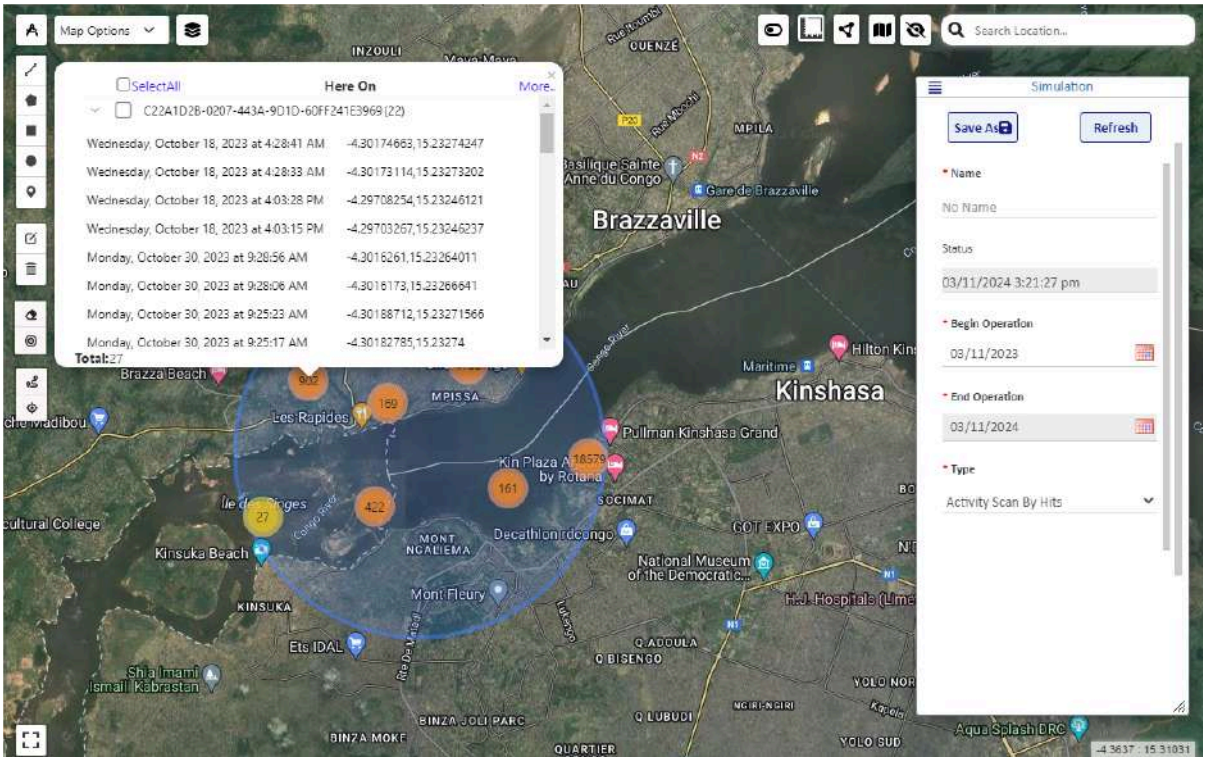


“Device Travel Pattern” used where multiple similar suspicious activities occured in different space and time: to retrieve the common devices between 2 or more areas at the same or different date range

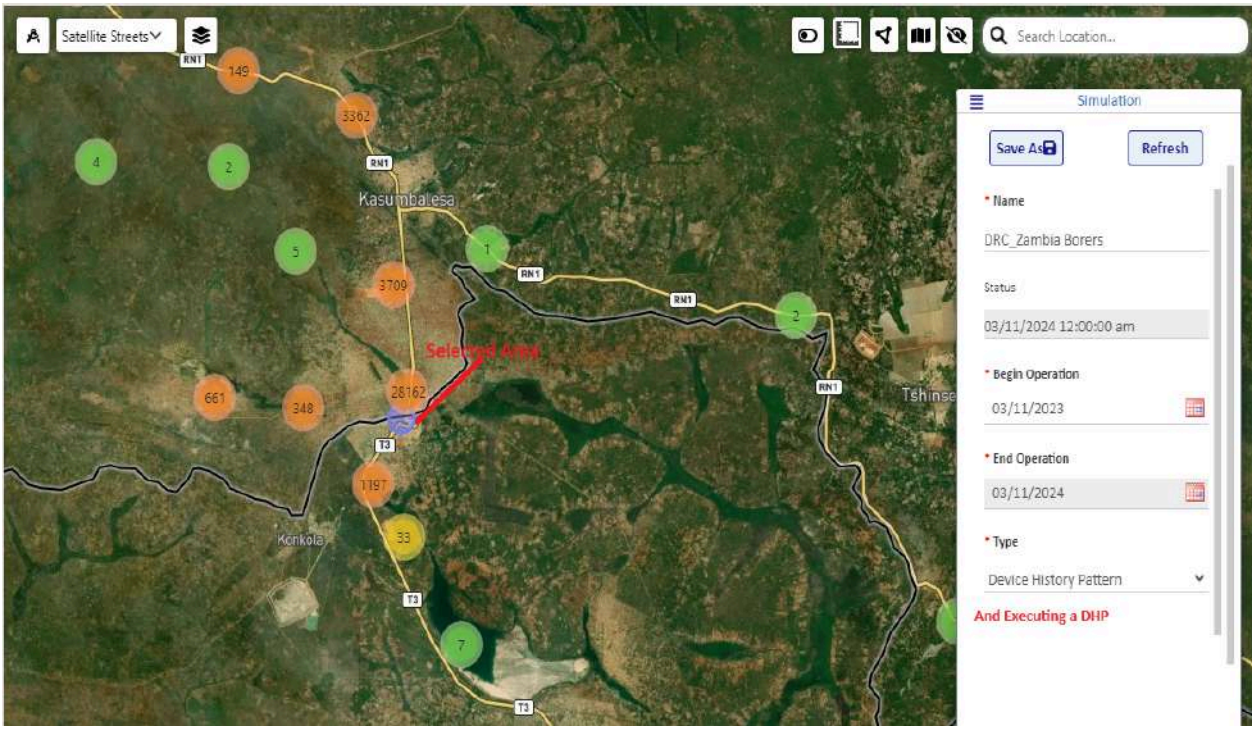




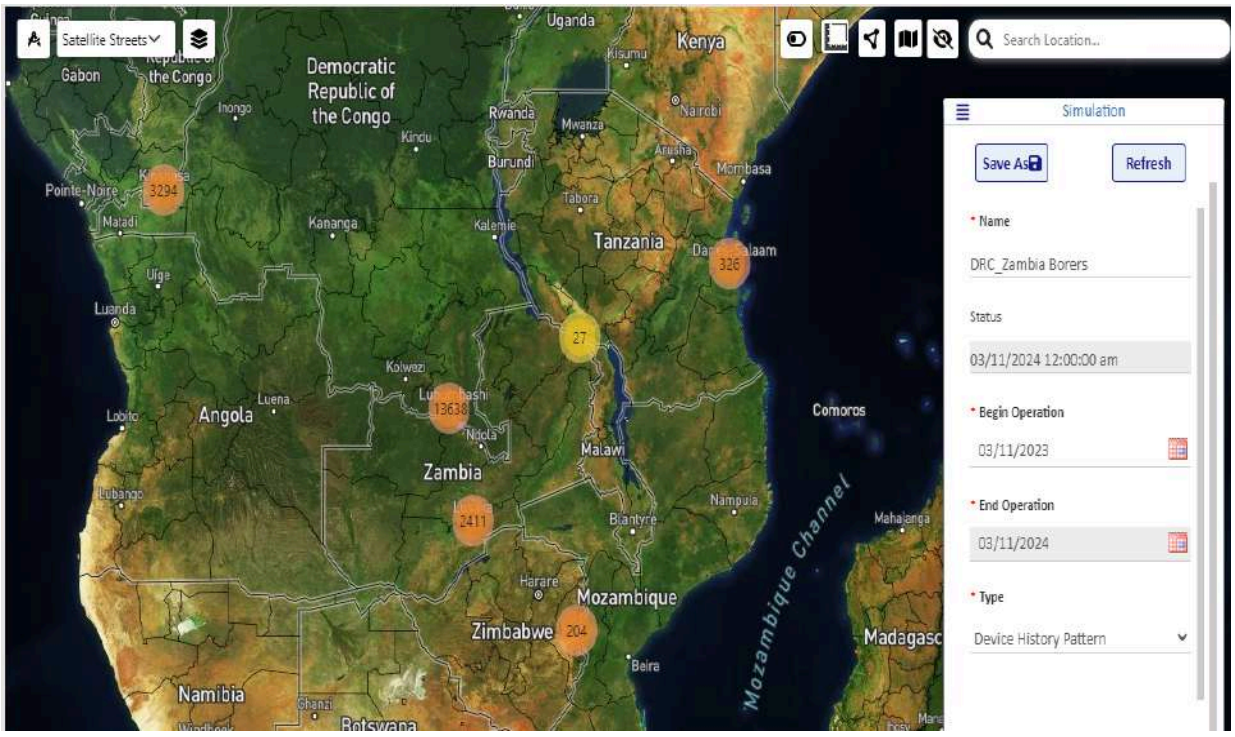
“Activity Scan” simulation as drill down returns the hits on a specific Area (River Borders) at any needed time



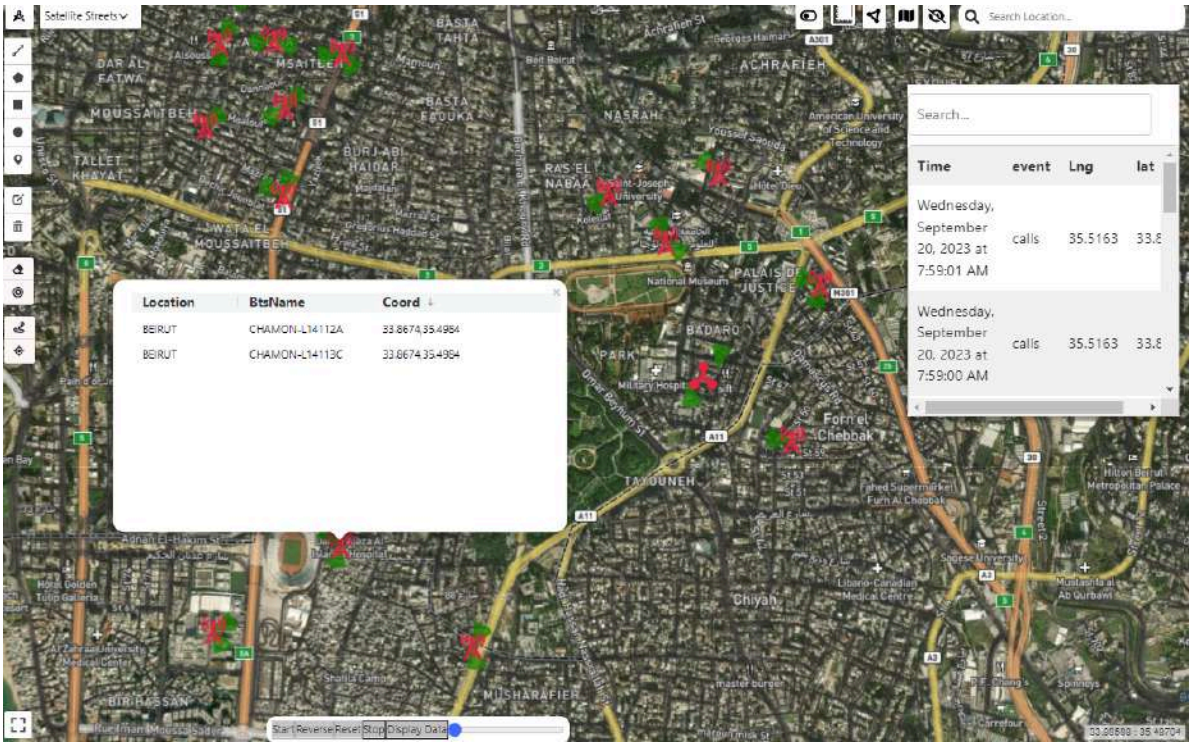
Step1: Taking a small region on the DRC-Zambia borders and checking the device history Patterns (Historical, current and latest activities of the existing devices)



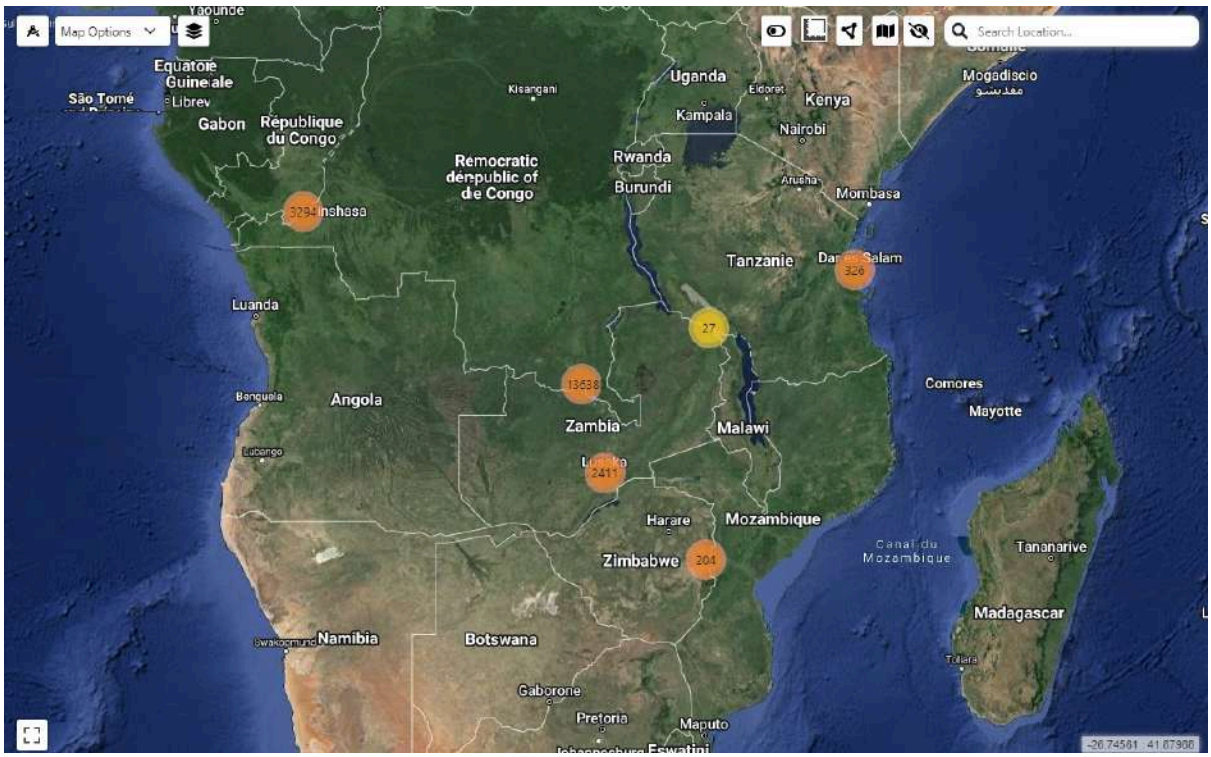
Step 2: The system returns the occurrences of existing devices, moved between DRC-Zambia, Tanzania, Mozambique, Zimbabwe,Tunduma heading to Dar-Es Salaam

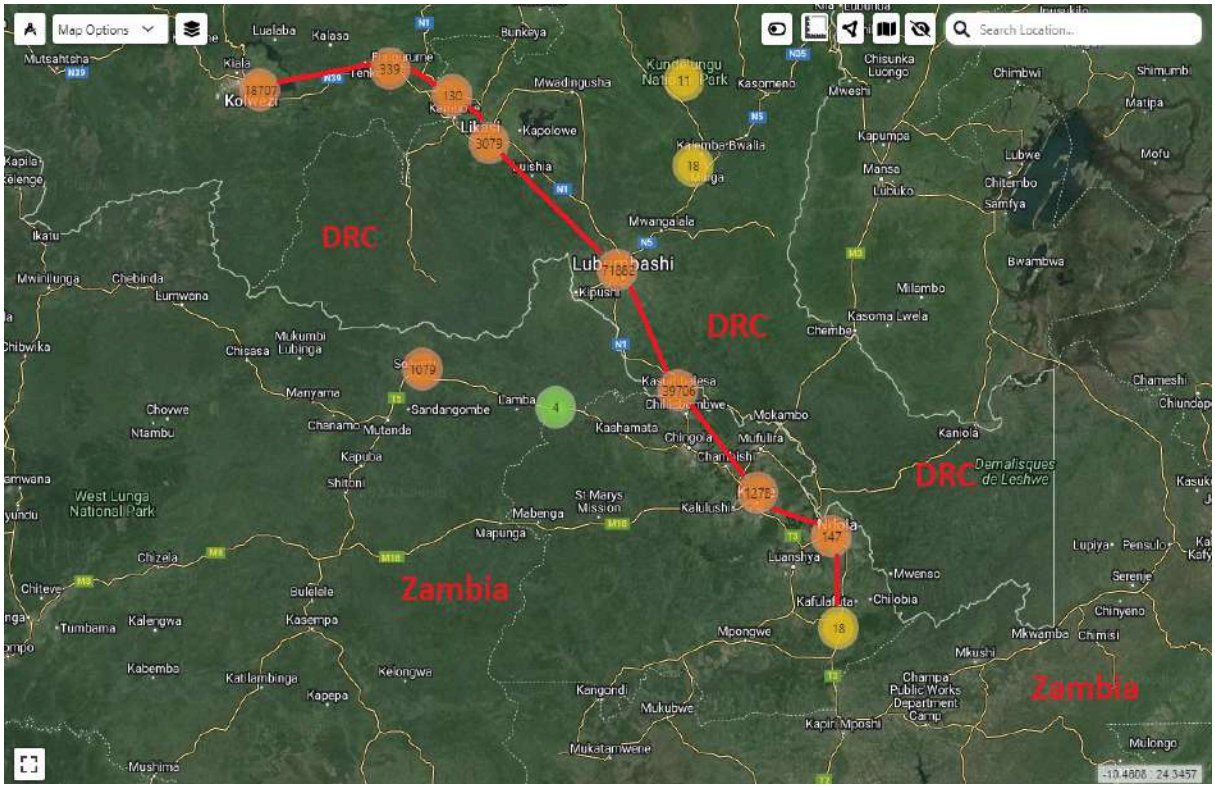


TCD: Trajectory, movement and tracing of specific devices, VCIS returns the events of these devices in space and time around each BTS.

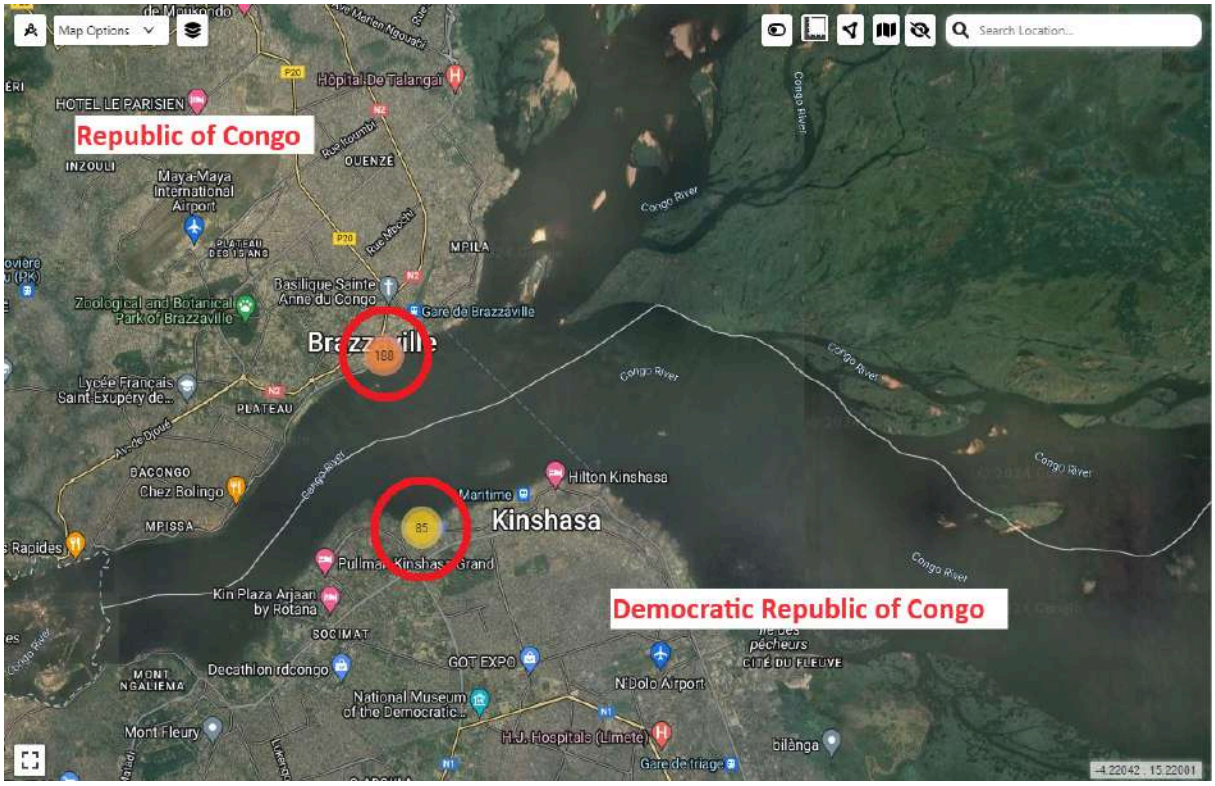


DRC - Zambia Borders





DTP between RC and DRC



DRC - Rwanda Airport heading to Kinshasa