

# **Android Tactical Object Surveillance (ATOS)**



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# Android Tactical Object Surveillance (ATOS)

## Introduction

ATOS is named in honor of a Military Working Dog KIA during a mission in OIF. ATOS is a GPS tracking system, developed to work inside of ATAK. The ATOS tracker and plugin allow users real-time GPS tracking with the ability to edit tag details and record track history. An ATOS Kit comes with a CommandLink, GPS Tags, magnetic key, and Pelican case. One ATOS Command Link can track up to one hundred Tags at a time. Tested and deployed in all WX conditions with agencies ranging from DOD to Disaster relief groups, wildland firefighters, and backcountry search and rescue.

## Kit contents / Item list

### SYSTEM PARAMETERS

#### **HARDWARE Overview**

- **CommandLink (charged by USB-C) can last 12hrs fully charged.**
- **Magnetic Key (Powers on/off CMND Link)**
- **Tag (Uses CR123 battery) 36-48hr battery life**
- **Pelican Case**
- **Optional Omni High Gain Antenna replaces tactical CommandLink antenna for enhanced LOS tracking range.**

### NETWORK

#### **Comms Overview**

- **TAG (receives L1 GPS)**
  - **Broadcasts LOS-UHF (432-436MHz) to CommandLink**
- **EUD (running TAK, Connects via Bluetooth or USB-C to CommandLink)**
  - **Pairing EUD to CMD Link**
- **CommandLink (Rx LOS-UHF from Tag)**
  - **Receives GPS positional data from tag (432-436MHz)**

## **CONNECTIVITY**

### **EUD to EUD / EUD to Cloud Connectivity**

- **WIFI/TAK Server/ Sit(x) and/or other cloud base servers**
- **Government procured MANET/ Mesh Network Radios**
  - **Trellis Ware/ Persistent/ Silvis/ Domo Tactical**
- **Commercial Mesh Network radios such as goTenna/Beartooth**

**When connecting to an external data radio via Bluetooth, be sure to connect that radio before the CommandLink**

# ATOS System Setup

## Step 1: TAG

- Unscrew tag lid from main housing. Insert CR123 battery '-' side down into tag body. '+' "nipple" up and visible. Tightly screw on lid (until green light appears). Place outside to acquire GPS signal.



- Green LED      powerup: battery good
- Red LED      powerup: battery too low
- Orange LED    acquiring GPS
- Blue LED      GPS locked & sending position

## Step 2: CommandLink

- Power on w/ Magnetic Key



Place the key to the power symbol at the top of the CommandLink for 1 second. Three audible beeps and three purple flashes indicate a successful power up. Note: if the key is held to the power button too long the CommandLink may turn off. Bootup time, approx. 20s.

- Slow Purple LED    listening for tags.
- Fast Blue LED      receiving tag data, GPS Good
- Fast Orange LED    receiving tag data, but GPS not locked

Step 3: Connect EUD to CMND Link

- Open ATAK.
- Open ATOS Plug-in in ATAK or ATOS standalone start-up app
- Select BTLE (Bluetooth) icon to start scanning for Tags.
  - If using USB-C this is not necessary. A restart of ATAK and CommandLink is required when switching from BTLE to USB and vice versa.
- Once tags populate in the ATOS plug-in, to broadcast the details over the TAK network (if desired), you must “turn on” each tag in the plug-in to enable data being pushed to other users.

Step 4: Look at your ATOS icon bar & find 3 papers stacked

- Choose Tag to Edit
- Select Cog Wheel
- Edit Tag details

Step 5: Select 3 stop lights (Opens Sub Menu options)

- Search
- Show History (Allows users to see tracks)
  - A track for each ATOS tag is saved automatically in the ATOS plug-in.
- Manifest Manager
  - This allows the establishment of multiple tag attributes at once. Additionally, the manifest can be sent to other ATAK devices that have the ATOS plug-in
- Clear Map icons (clears non active Tags)
- Hide Stale List items
  - Previous ATOS location Information will populate as a stale tag on ATAK and can be hidden if desired

#### Step 6: Select Manifest Manager

- Create Manifest with active tags
- Name
- Copy
- Send (Allows users to share over the Network)
- Excel template
- Delete

Note:

Once GPS tags are turned on, the user needs to ensure tags are outside with clear view of the sky so that they can obtain initial GPS lock. Tags begin to transmit data over UHF only after initial GPS lock is achieved.

#### Results of improper setup

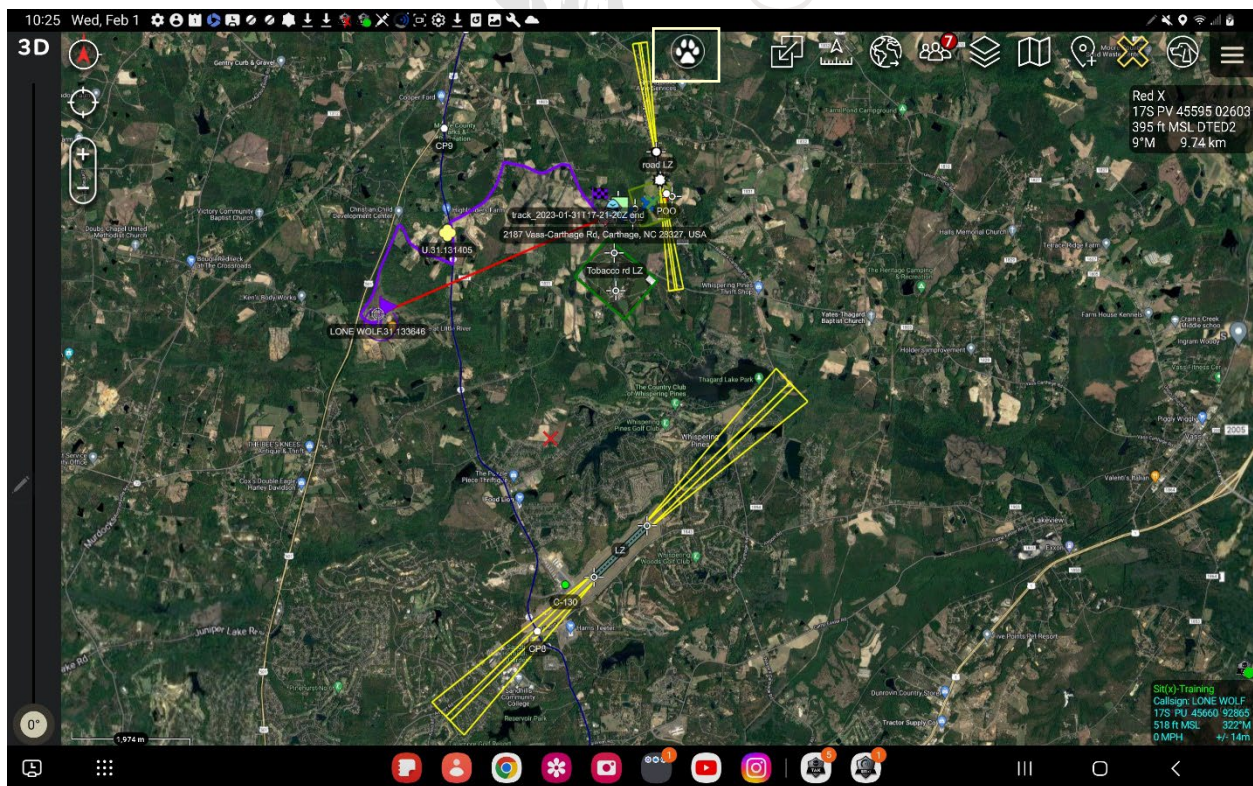
- Corrosion of battery
- Tag not powering on
- CommandLink Antenna connector cross-threaded or bent due to user not properly seating antenna or improper storage.
- Non-Compatibility, due to user not having appropriate TAK software or plugin, or update required to communicate with device.



## ATAK and ATOS Plugin Usage

The (ATOS) Android Tactical Object Surveillance Toolkit Plug-in icon "paw logo" is utilized for real-time tagging, tracking, and position location information.

GPS Update Rate 1 or 2sec (100tag) or 6sec (200tag)



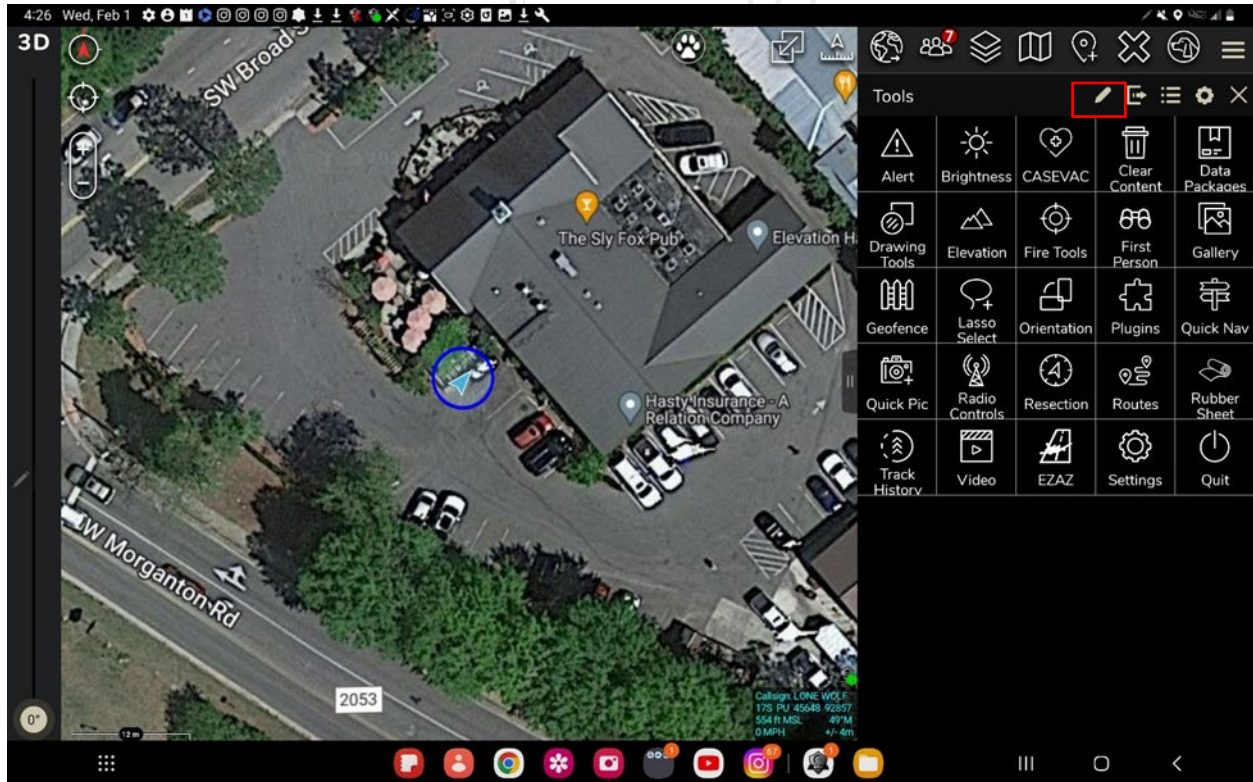
Important:

ATOS plug-in must be installed in TAK prior to use of the CommandLink and ATOS tags.

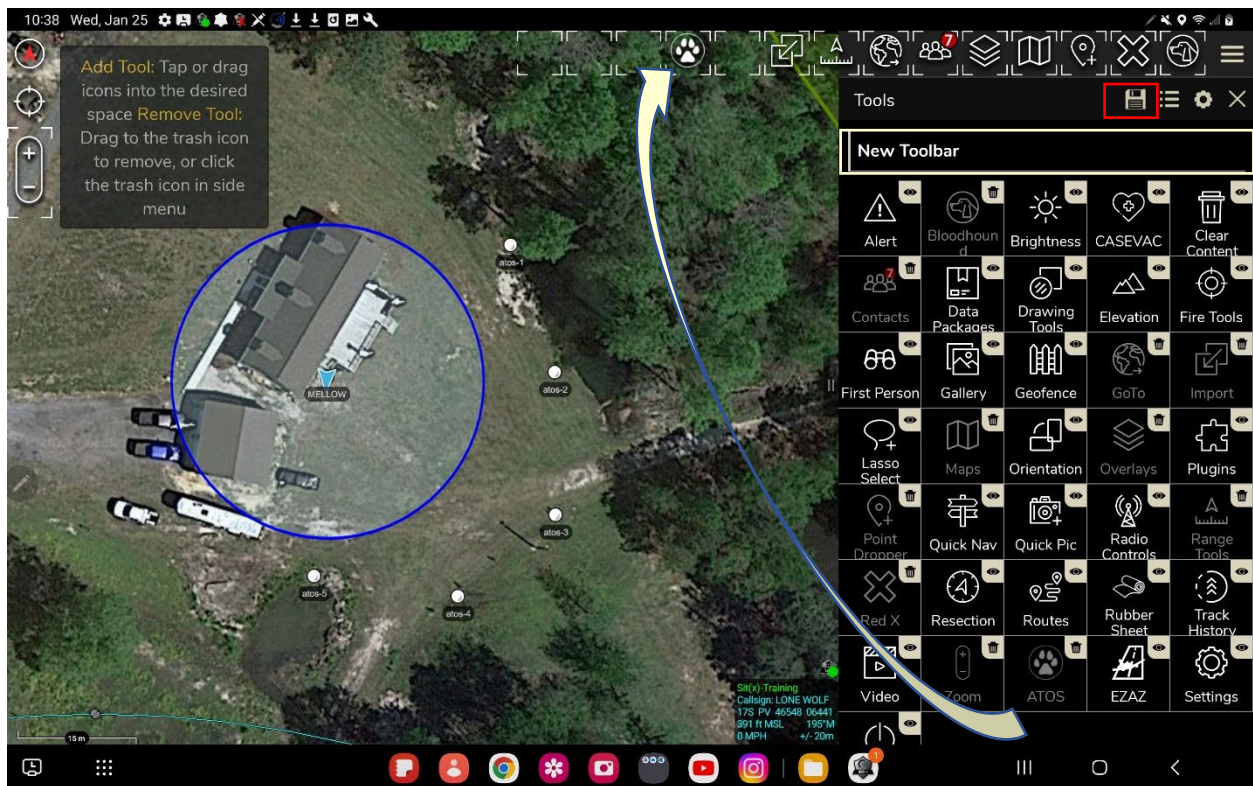
Ensure Bluetooth permissions have been enabled for the ATOS app through ATAK and ensure Bluetooth is enabled on the ATAK device.



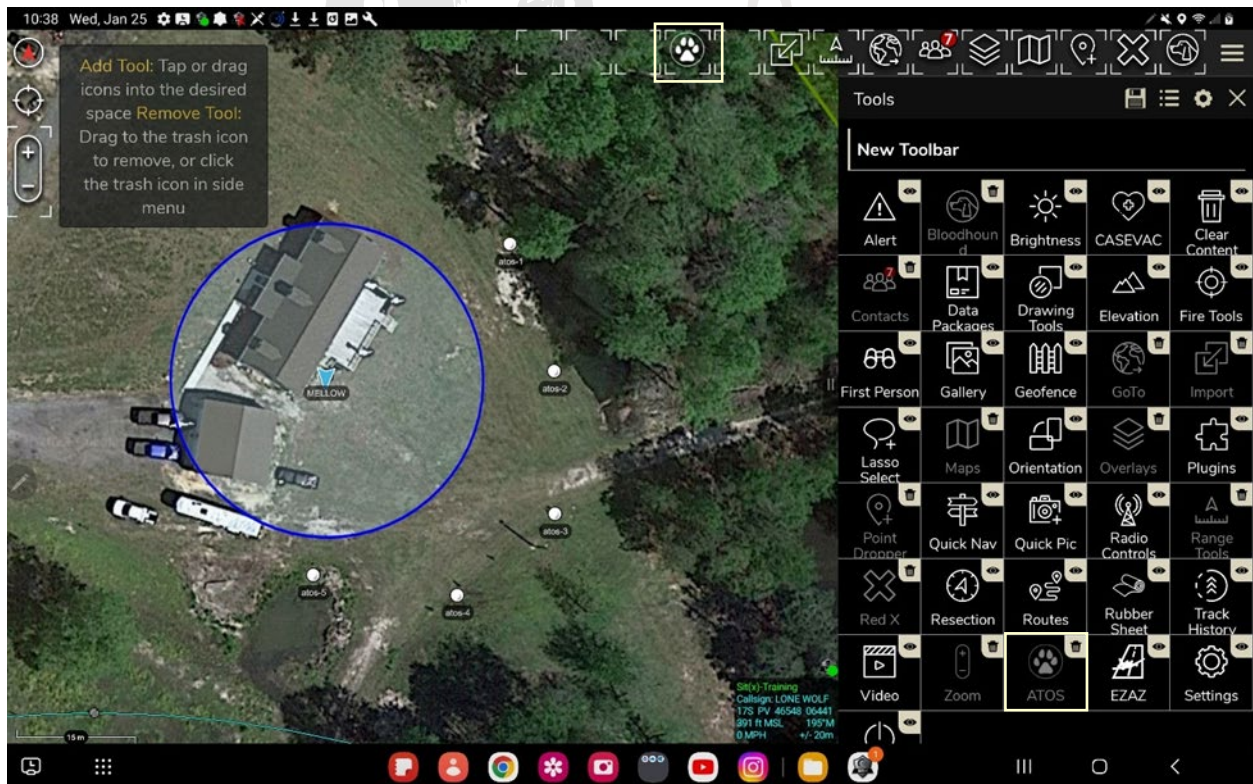
Select edit “pencil” icon to add or your ATOS Paw plugin into visible Toolbar.



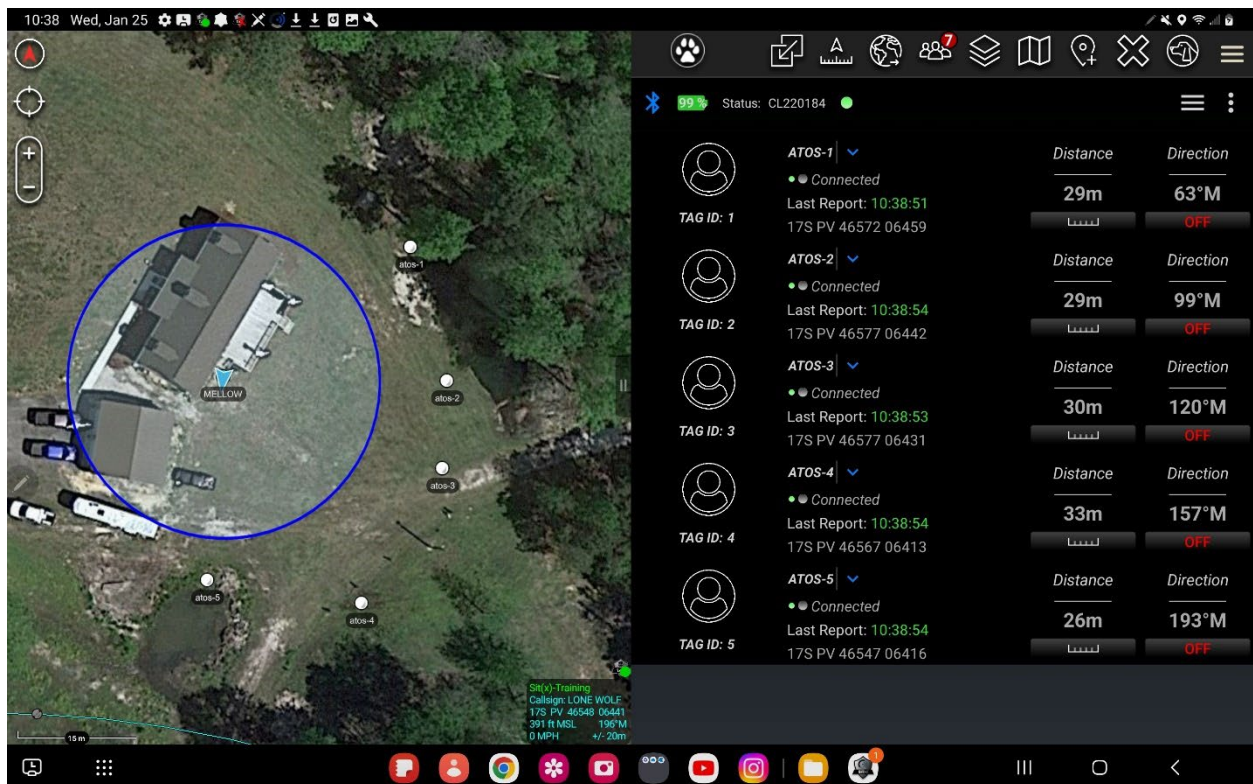
Click & hold on the ATOS icon and drag it into the user's top left-hand corner.



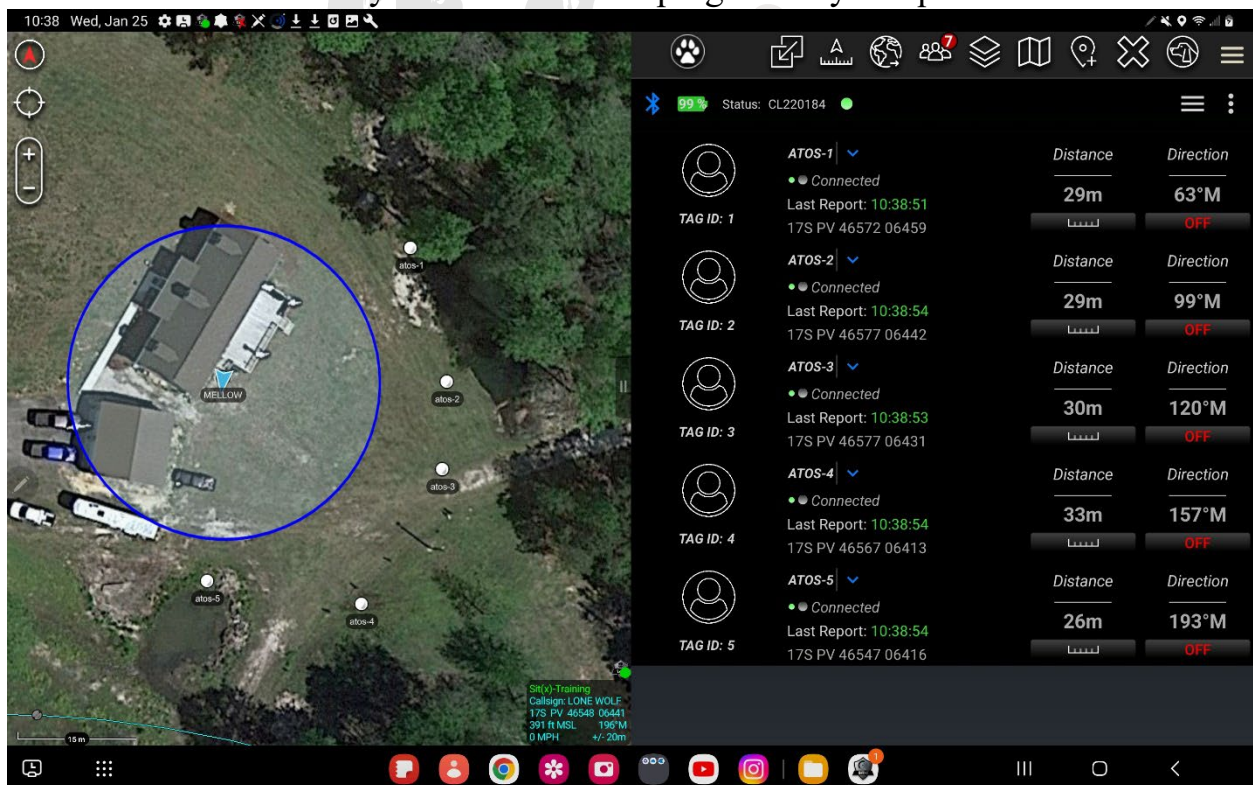
Select save icon.





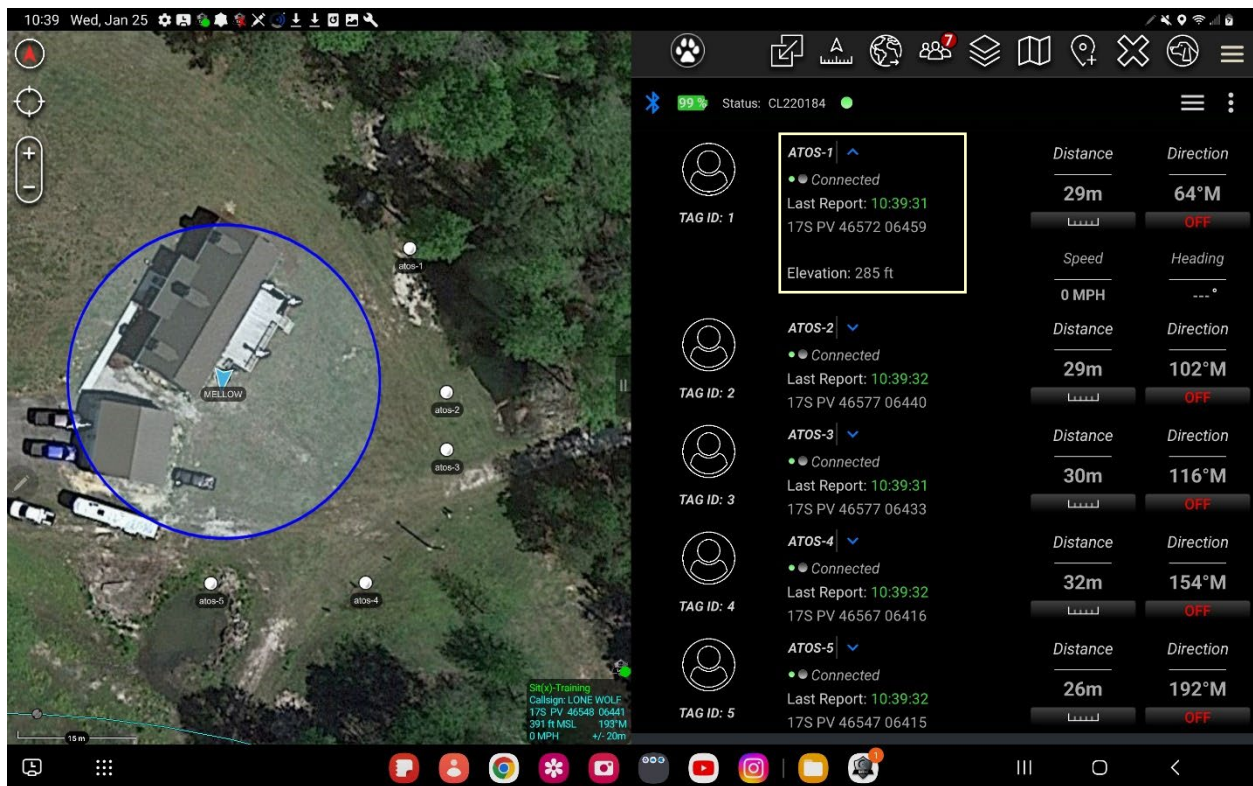


The user has successfully added the ATOS plugin into your quick action toolbar.

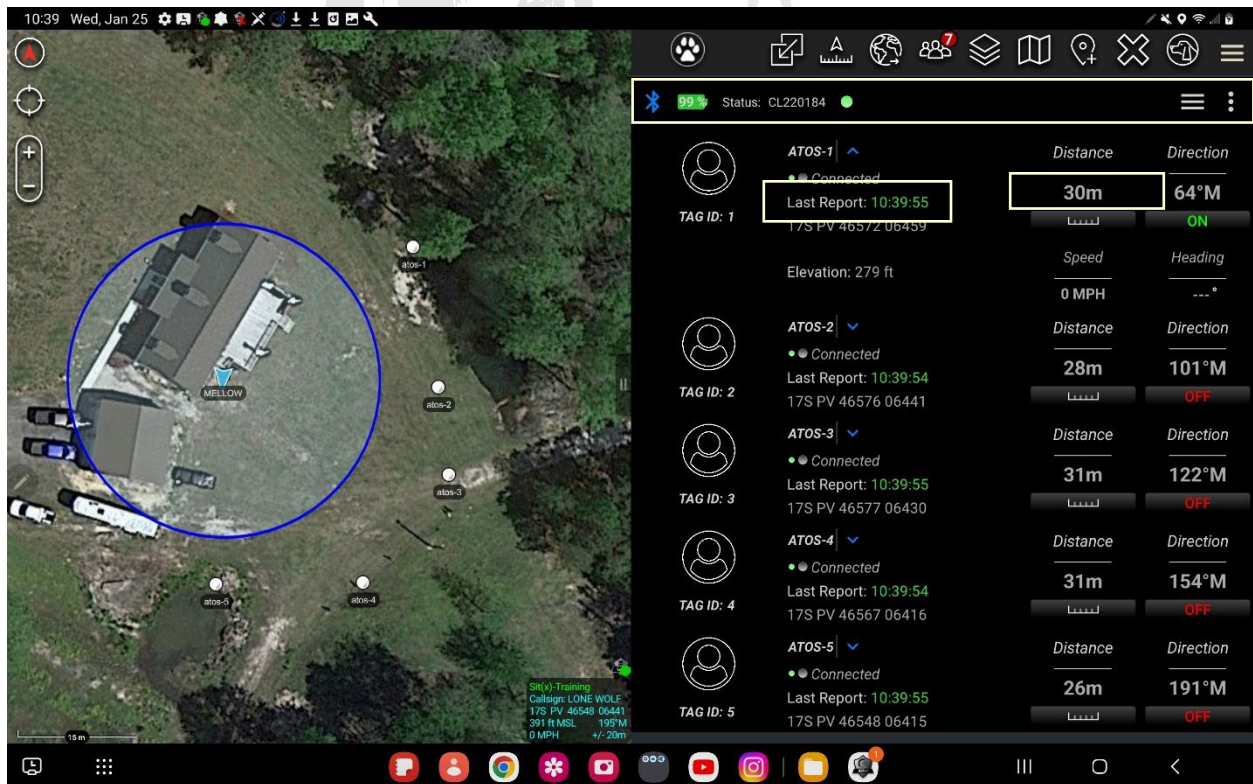


Select blue drop down arrow right of callsign for additional information.





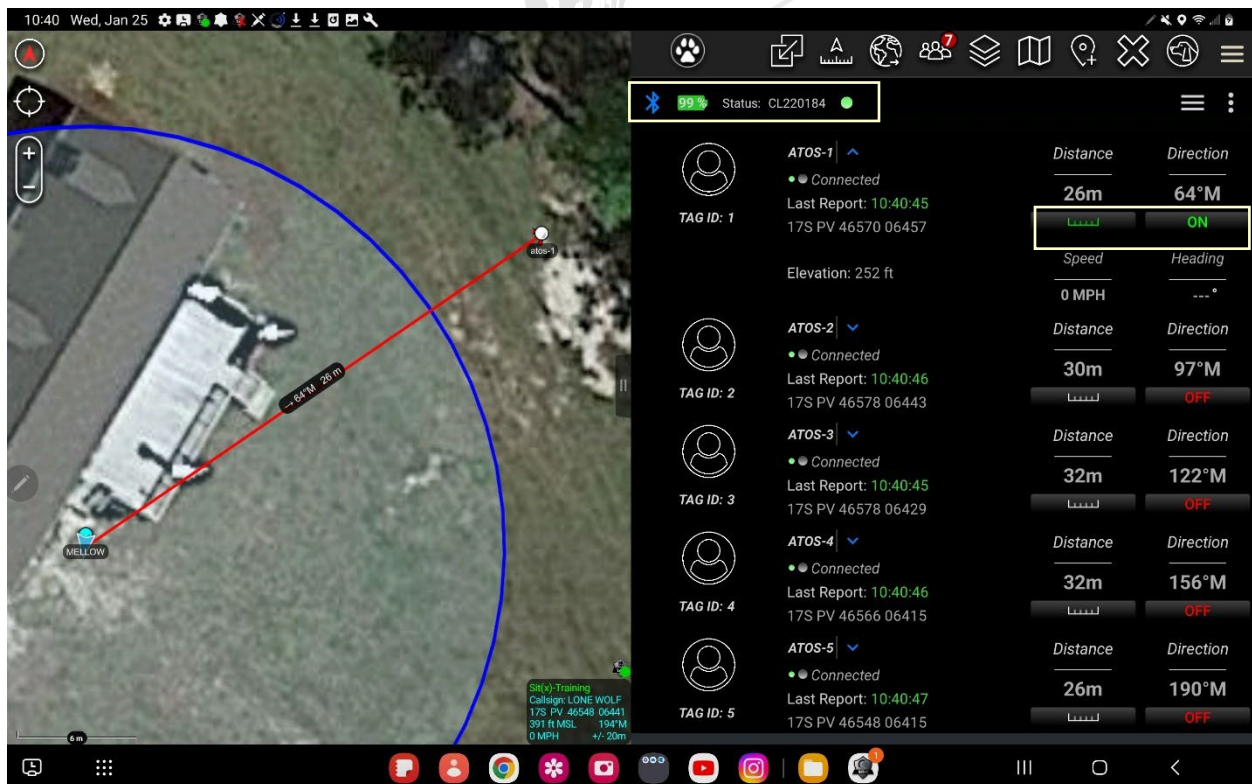
The ATOS plug-in will display the status of the command link connection.



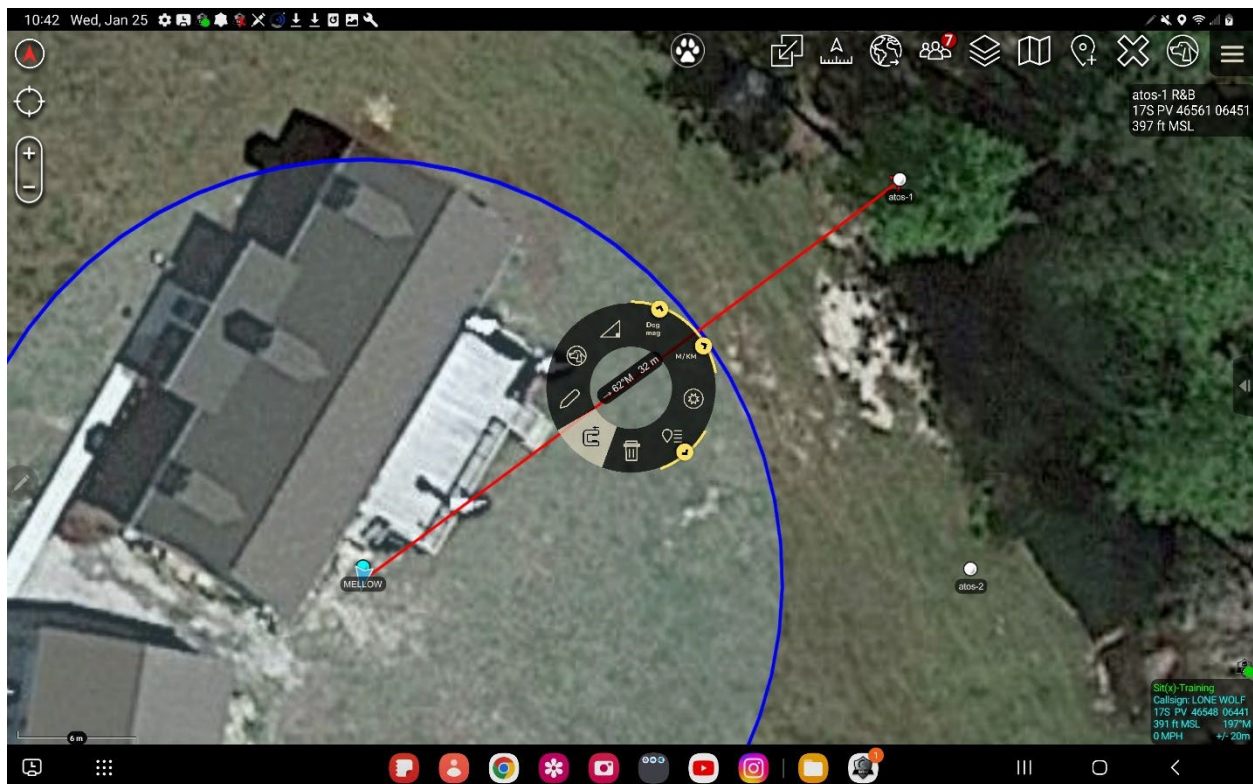
ATOS Command Link will start “SCANNING” and connect, then display serial number of the paired CommandLink “CLXXXXXX”. A green light indicator and battery % will show Status of CMND Link.

ATOS Tags will populate in numerical order under the main ATOS toolbar. Last report indicates tags GPS refresh rate when in range and tracking, or time when last GPS coordinates received if tag is out of range. The “distance” is the distance between the CommandLink and the ATOS tag

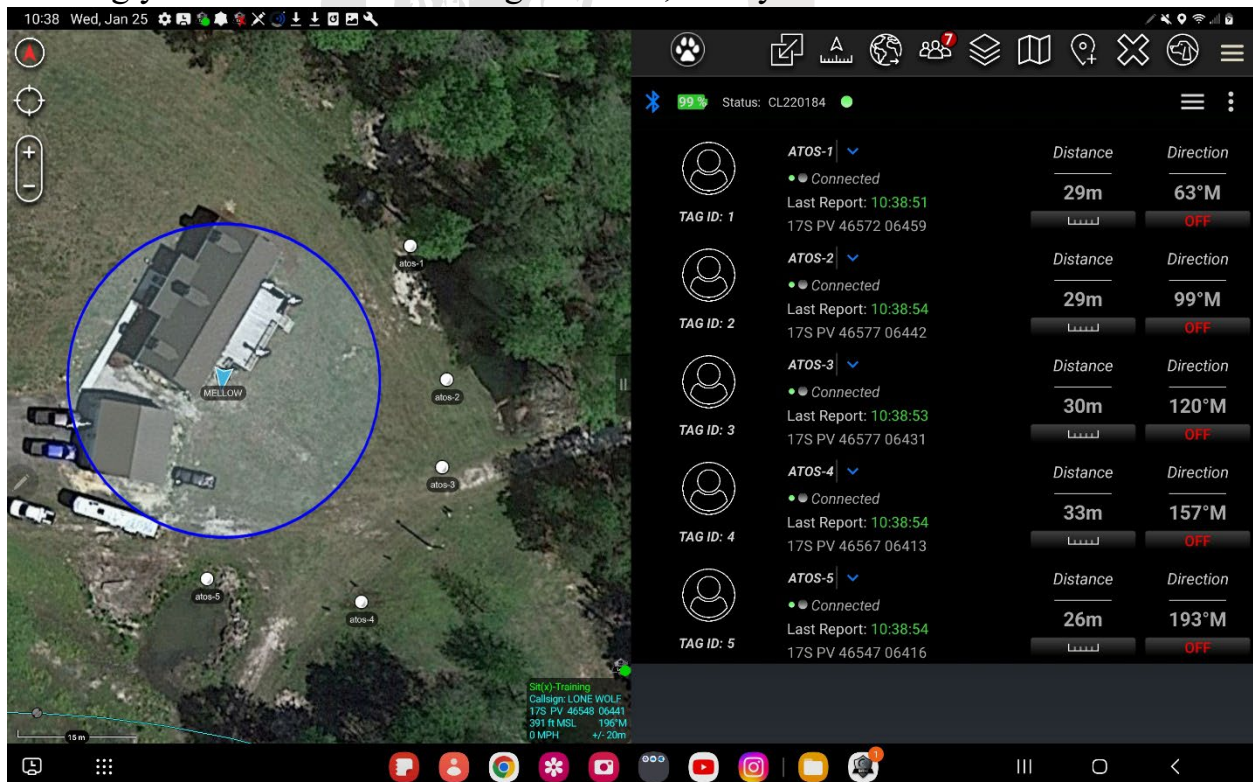
The “ruler” function allows for an immediate range and bearing to the ATOS tags



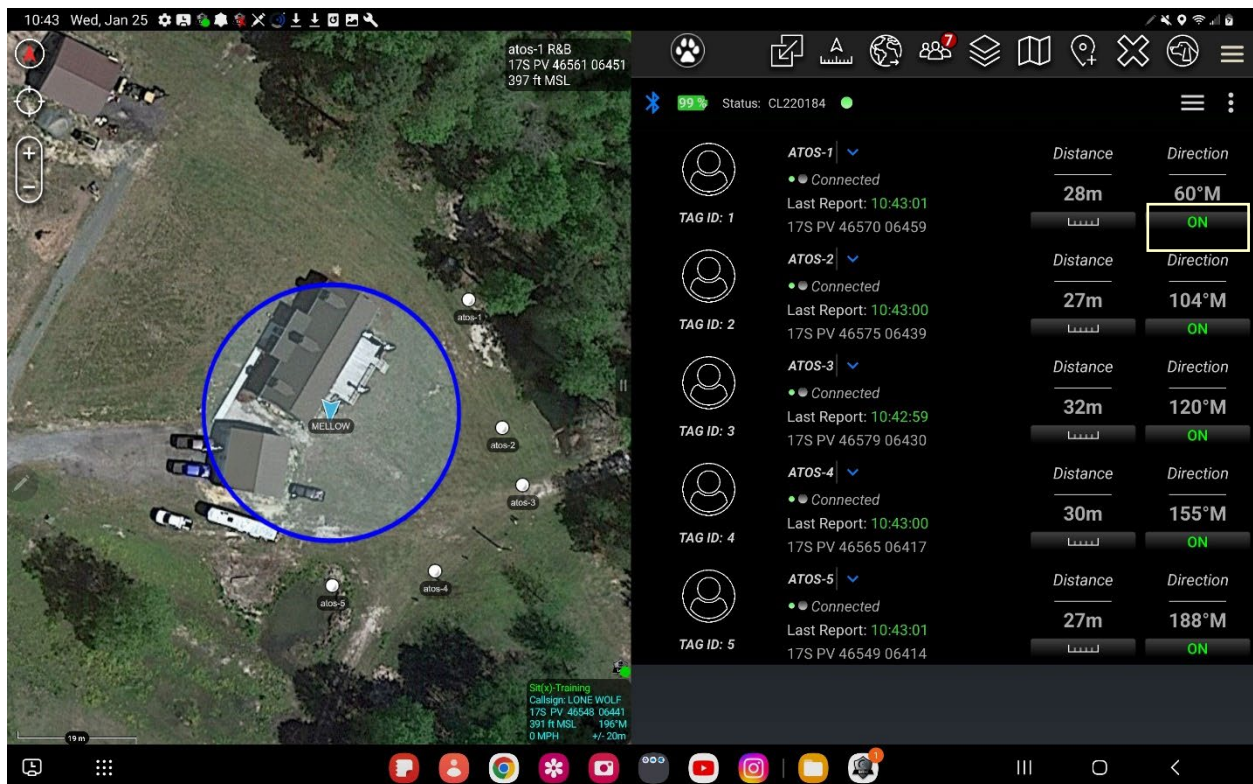




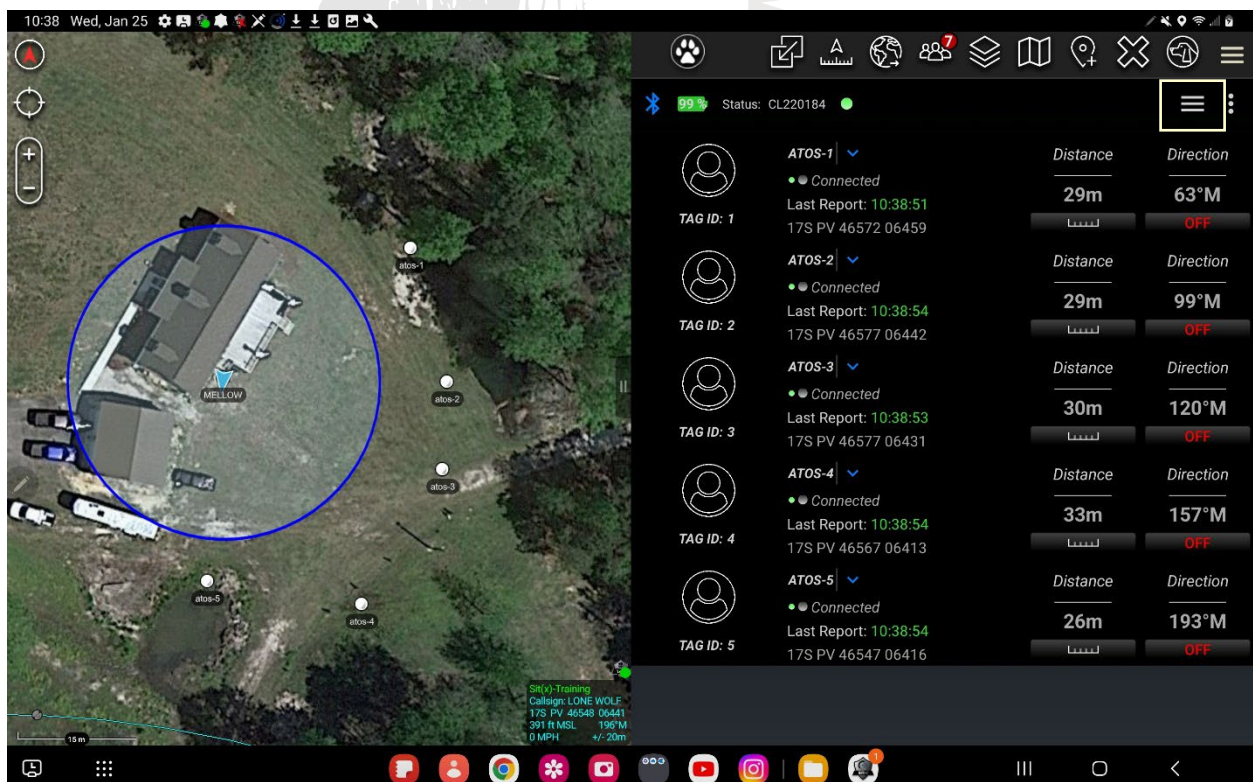
Note: To allow other users to view tags on their EUDs, ensure you select “ON” for each tag you want to broadcast tag’s DATA, over your network.

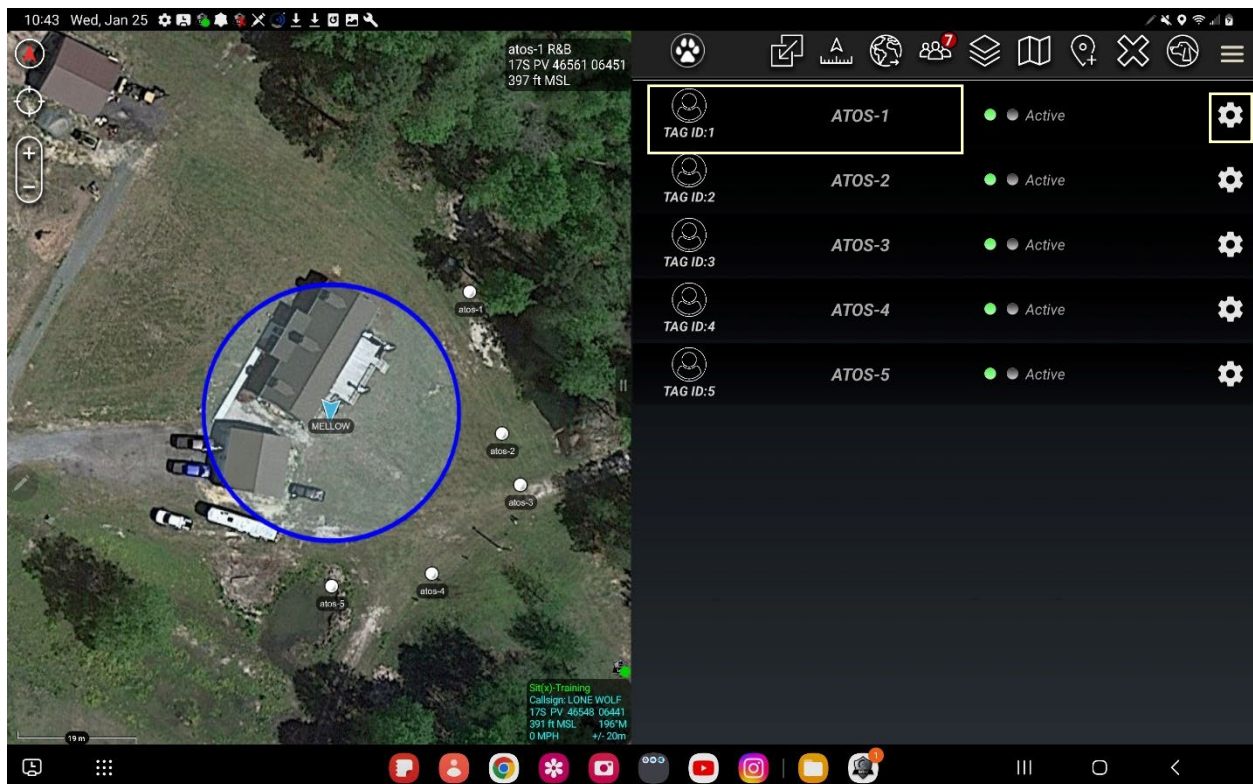




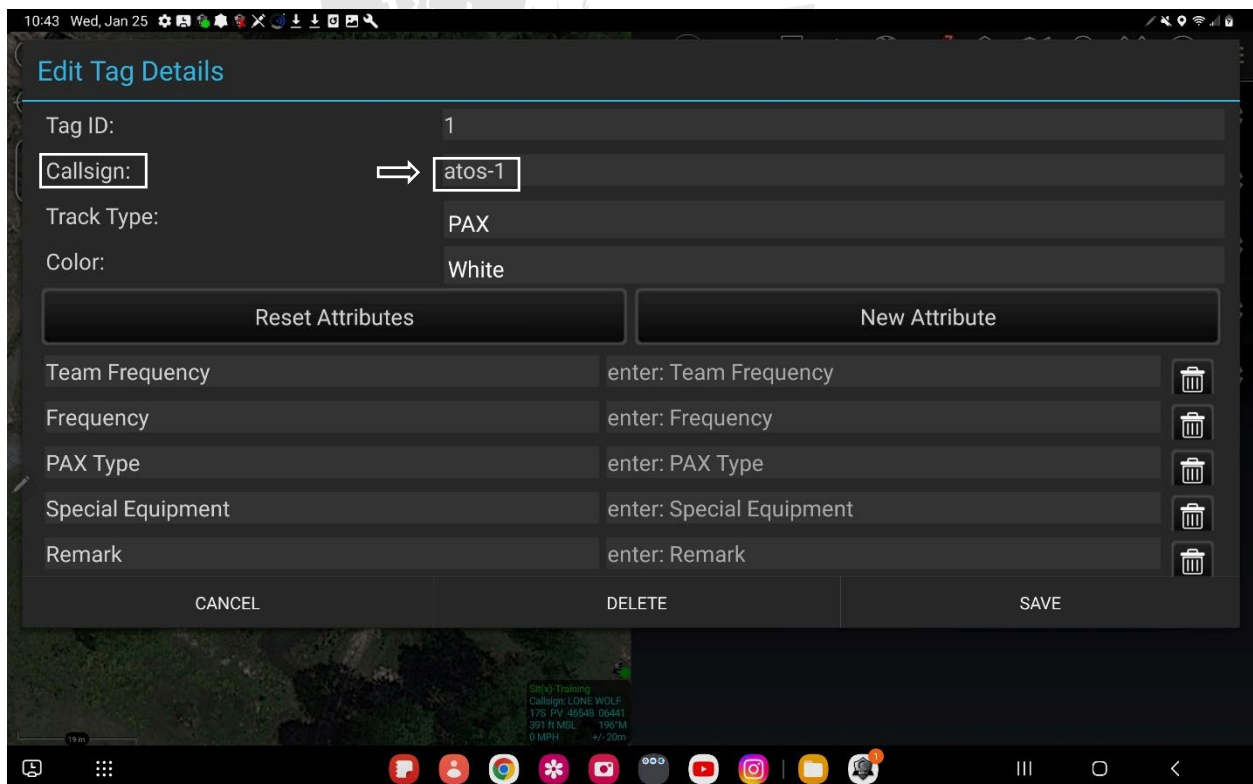


Click ATOS Edit Page icon to view tag details, and editable tag criteria.

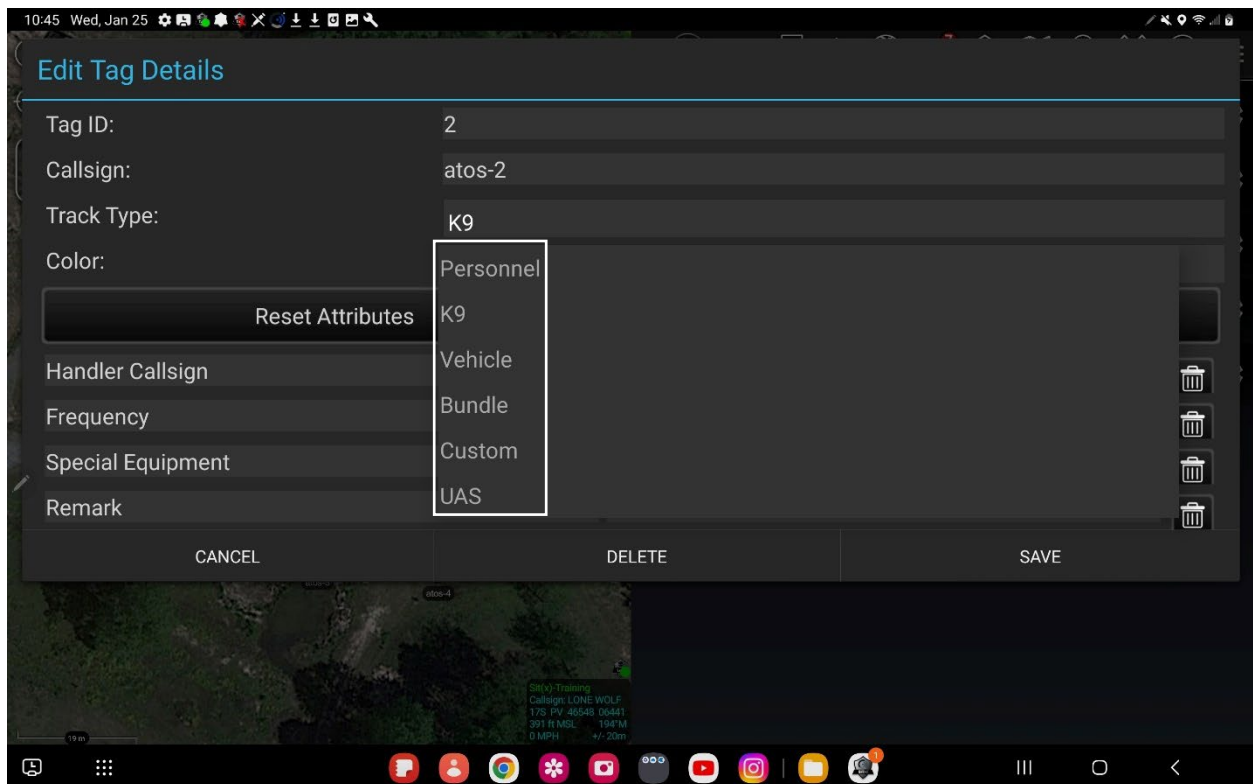




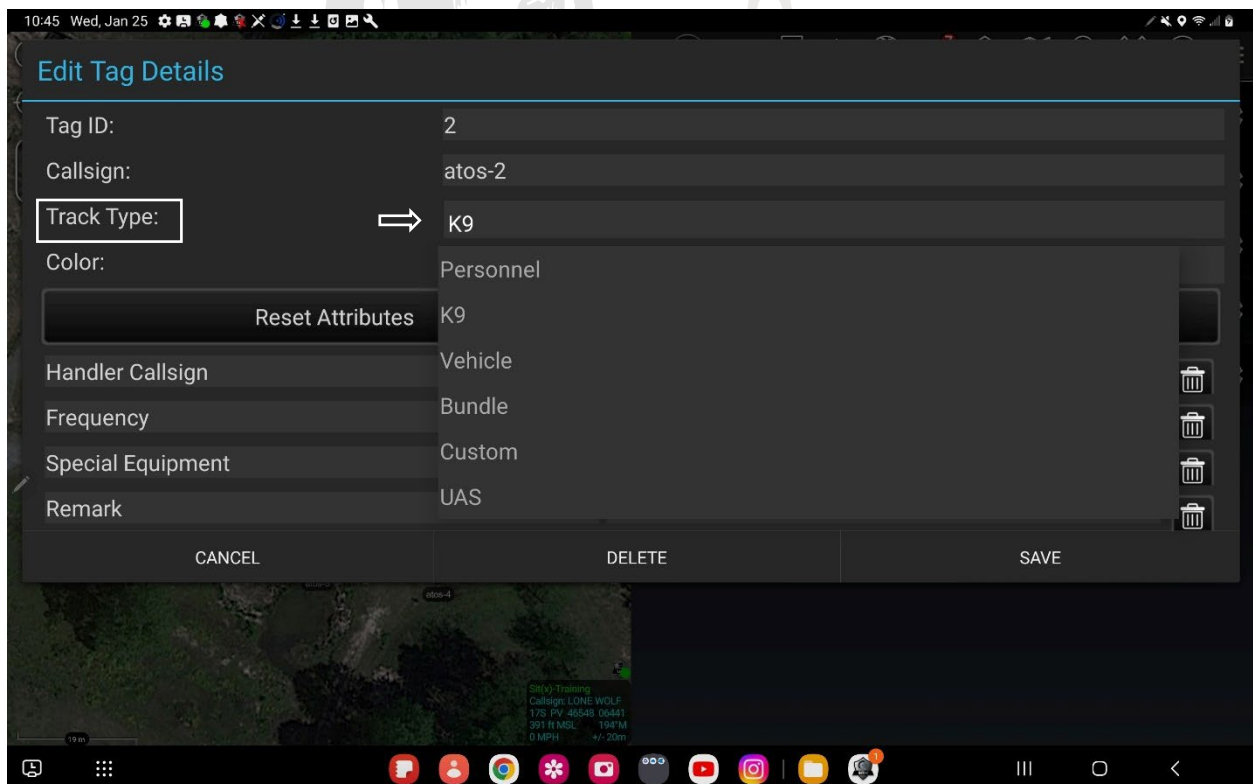
To Edit Tag Details, select the cog wheel. Option to change callsign and edit all attributes based on track type.

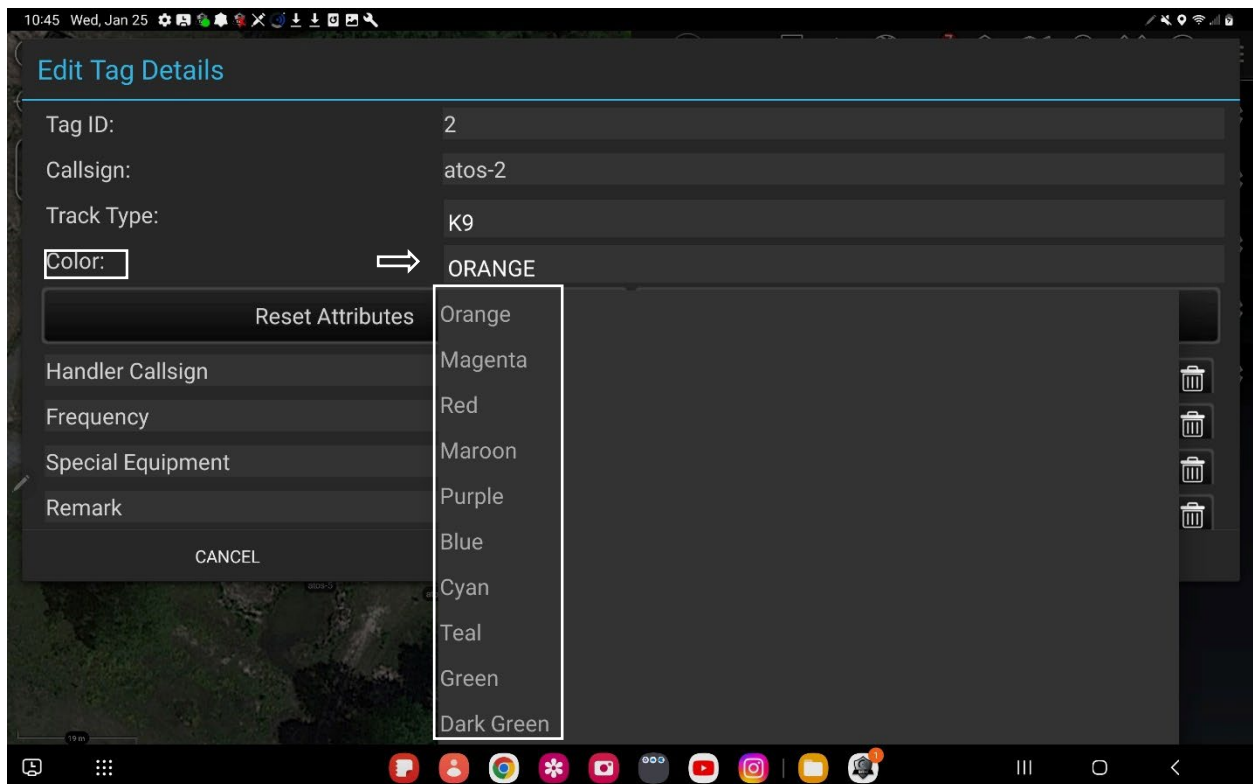




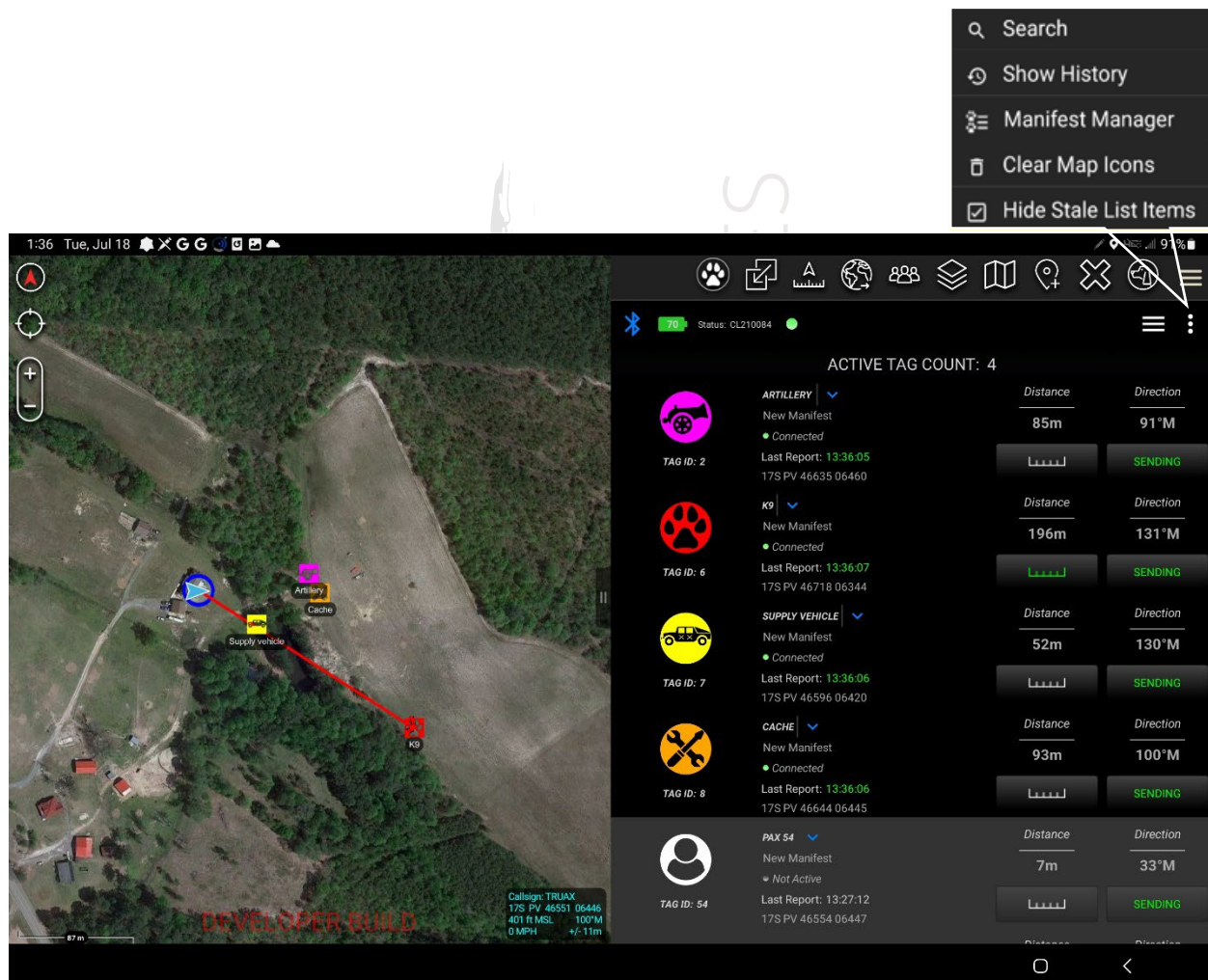


Edit Tag Details by selecting track type.





The menu indicated by the 3 vertical dots allows for the user to search ATOS tags by attribute, show tag track history, create a tag manifest, clear all ATOS icons/PLI, and hide stale or inactive ATOS icons/PLI



The “search” function will allow a search by ATOS tag color, tag type (i.e K9, Vehicle, UAS), tag number, distance, and call sign.

“Show history” shows tag track data history. The user can click “View” Button to display track information on the user’s map display.

The “manifest manager” allows for the modification of attributes of all tags on the network and transmission of the attributes to other ATAK devices running the ATOS plug-in

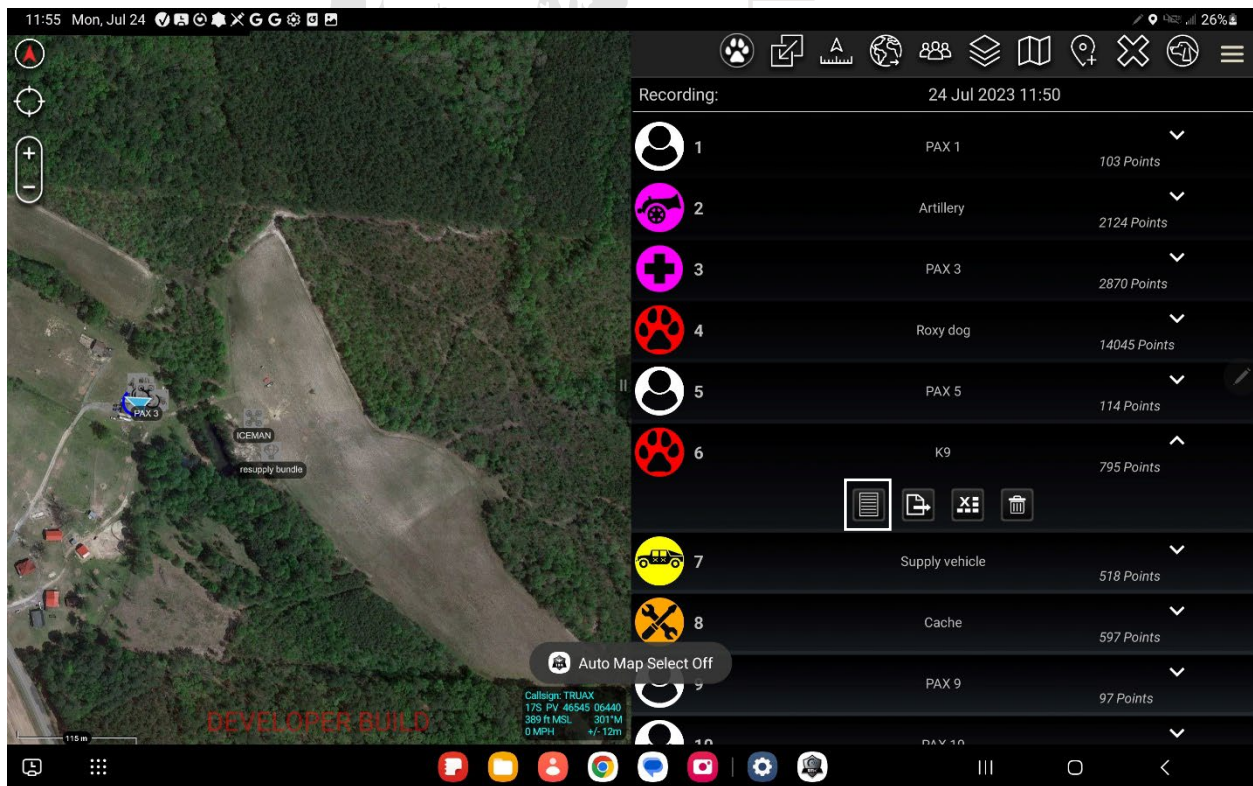
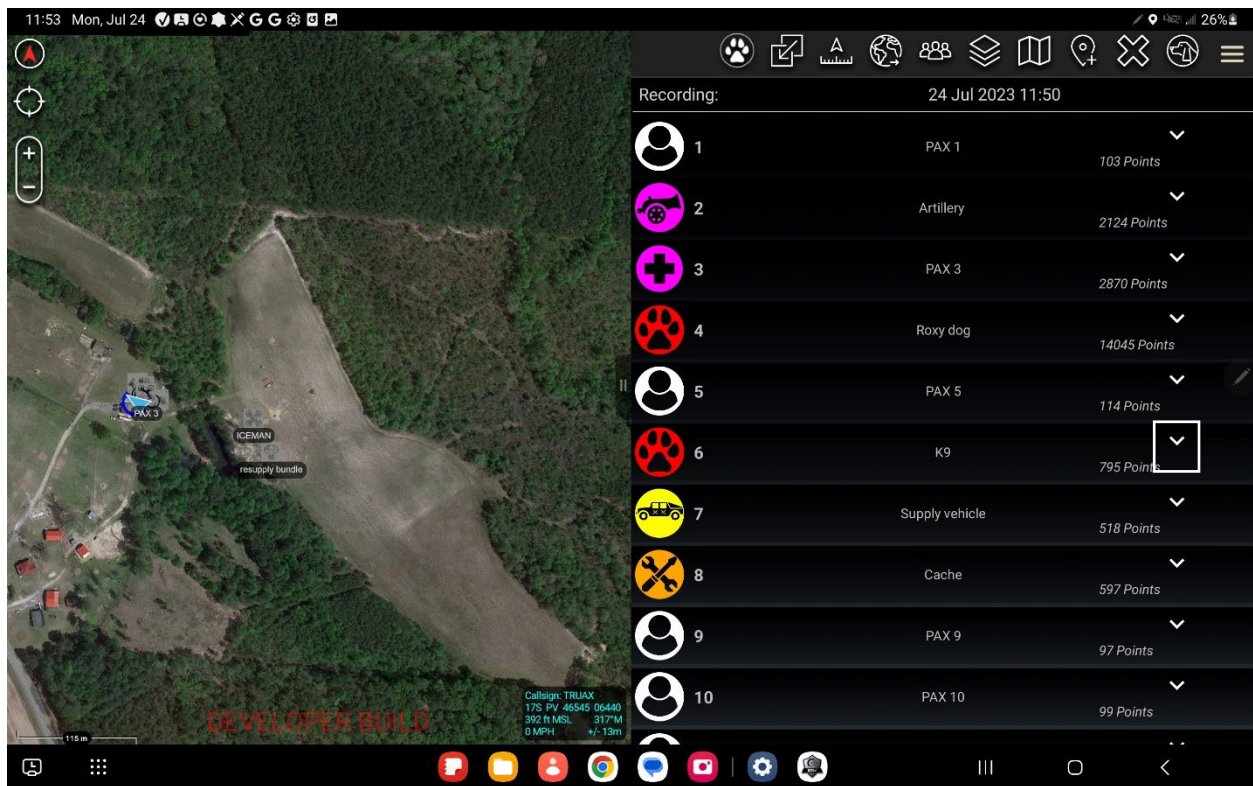
“Clear map icons” and “hide stale list items” allow for the management of stale or irrelevant ATOS icons/PLI

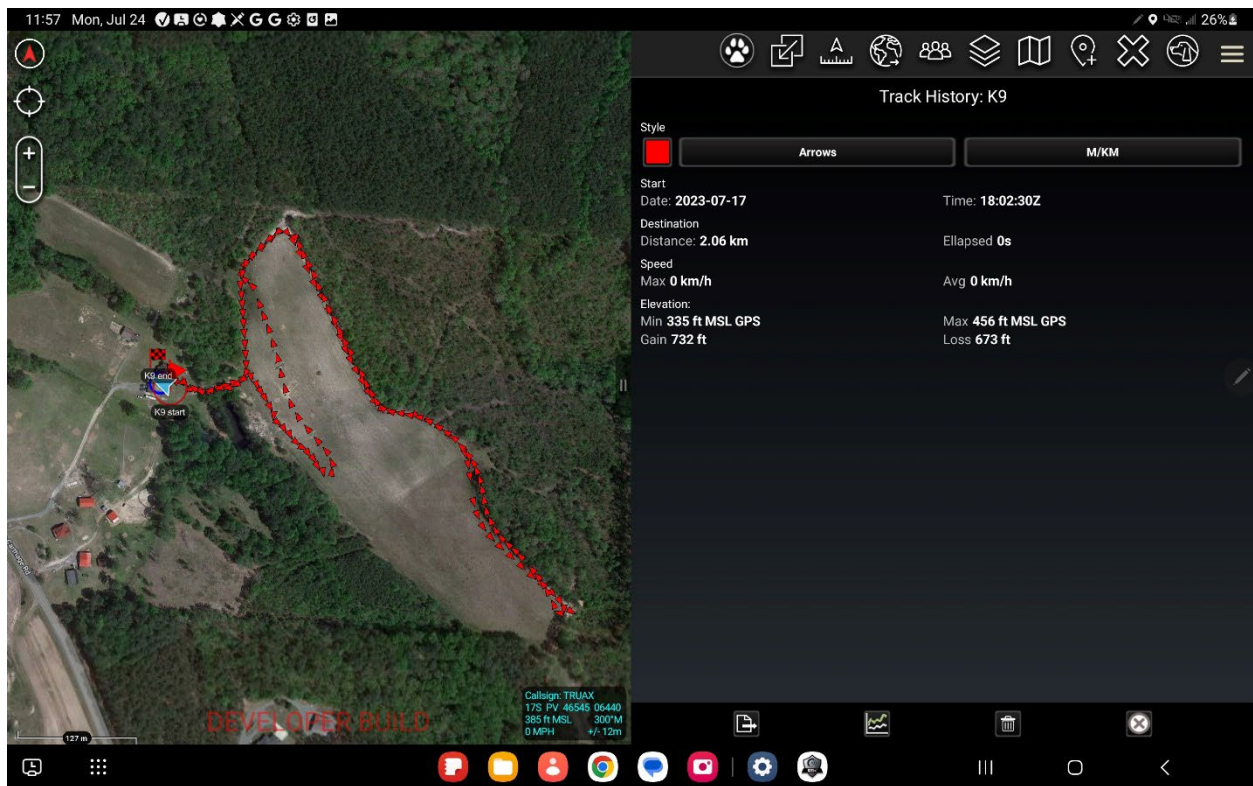


## Show history function

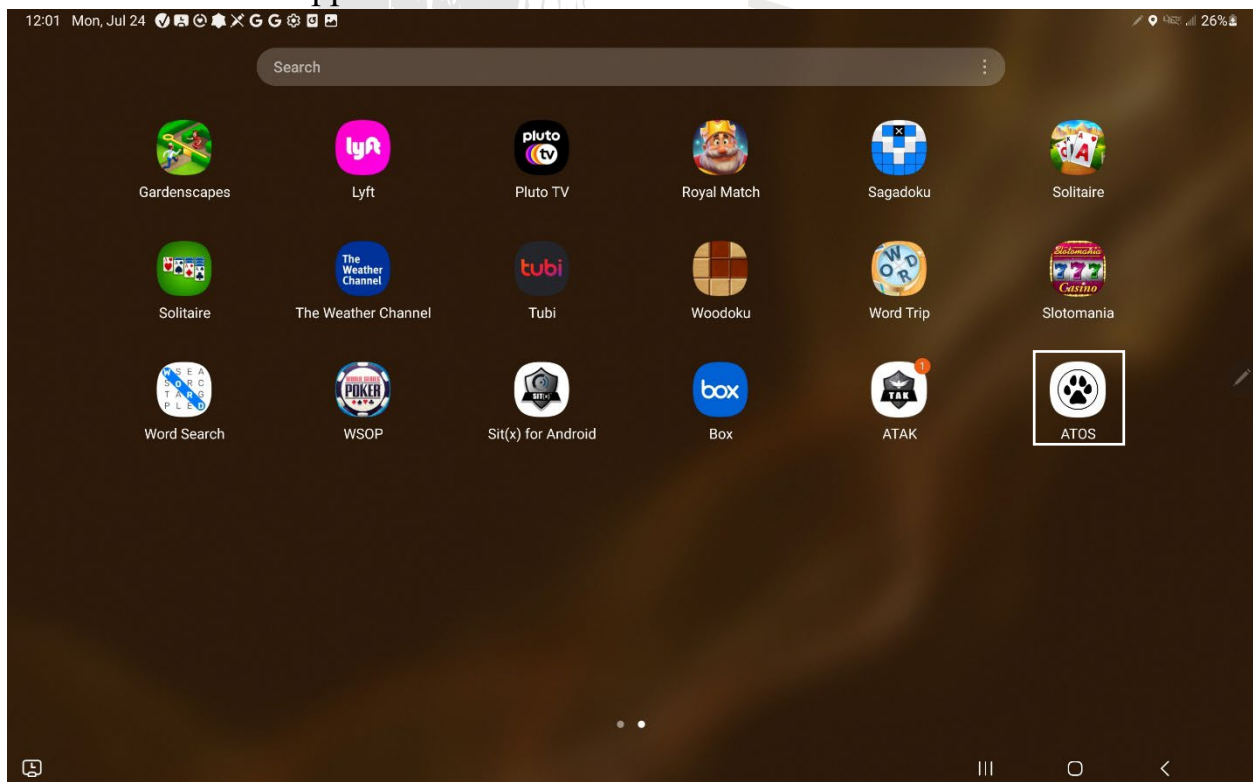






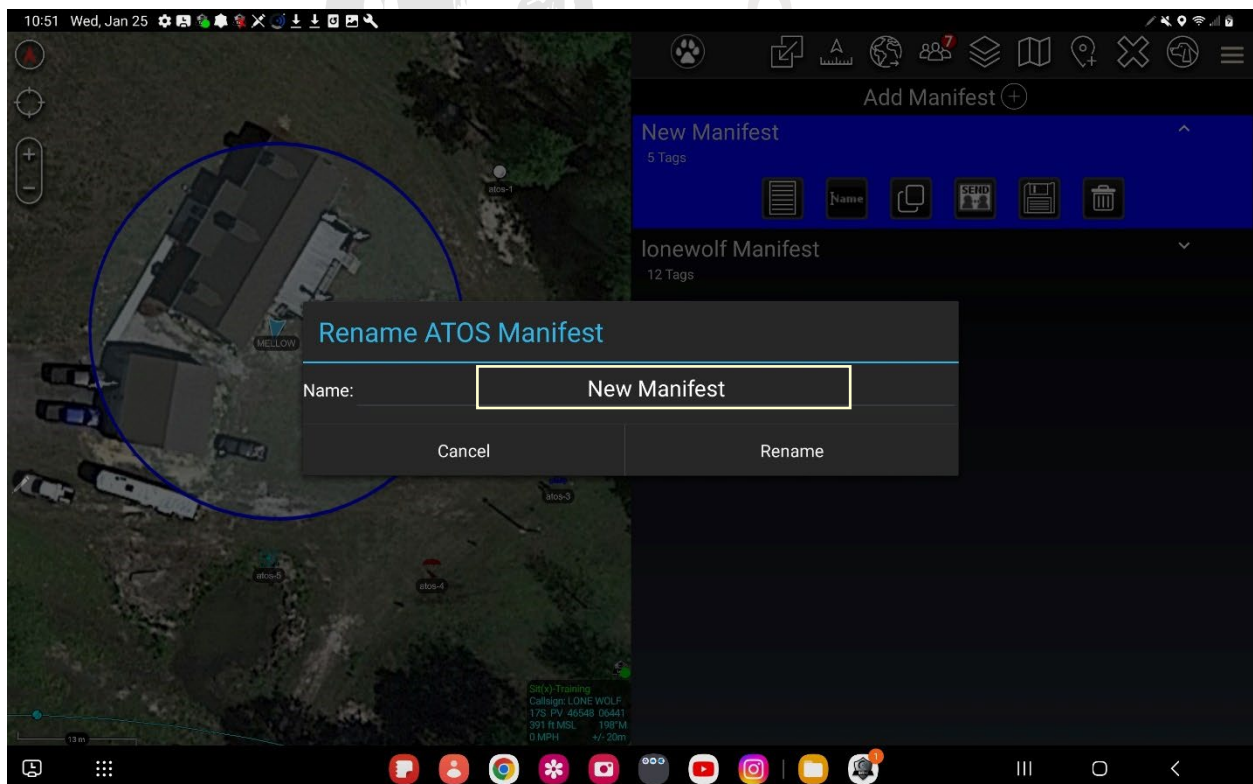
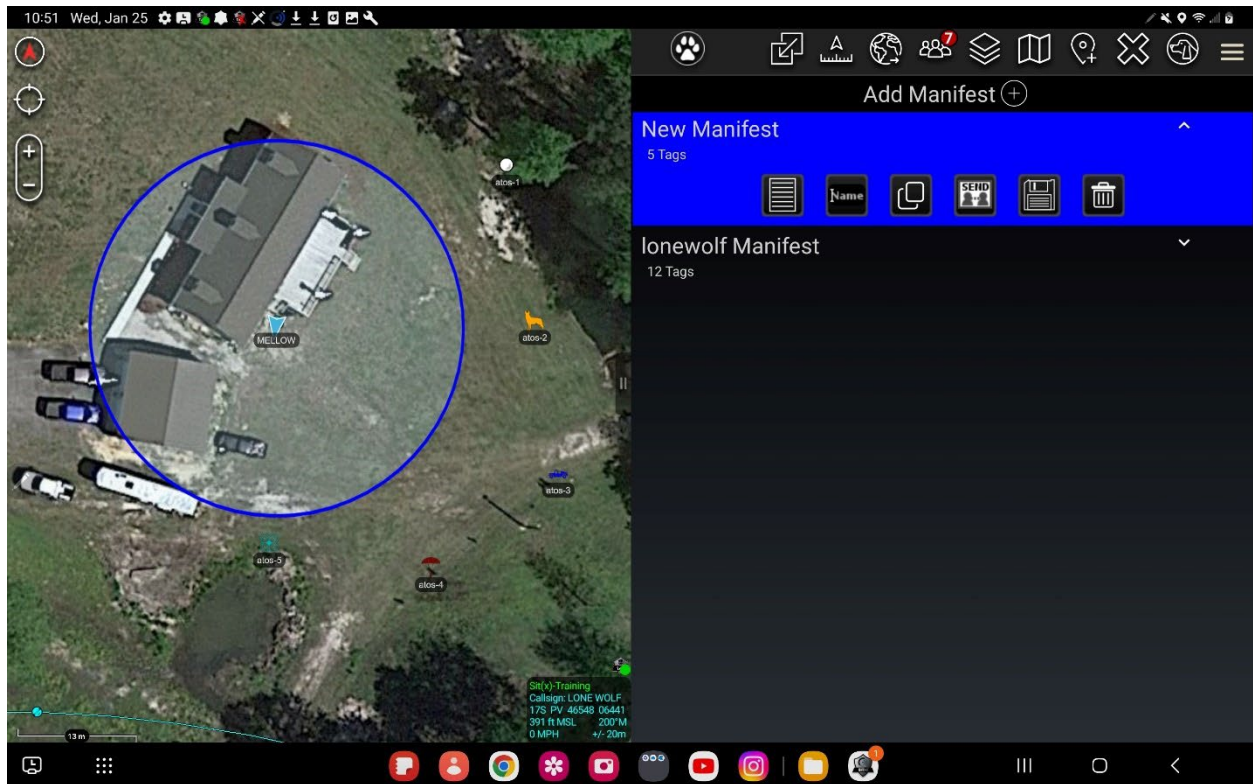


Note: All tag tracking data can be exported as either an ATAK route, KML, KMZ, GPX, or a CSV file (Excel). Track data can also be viewed and exported via the ATOS stand-alone application.

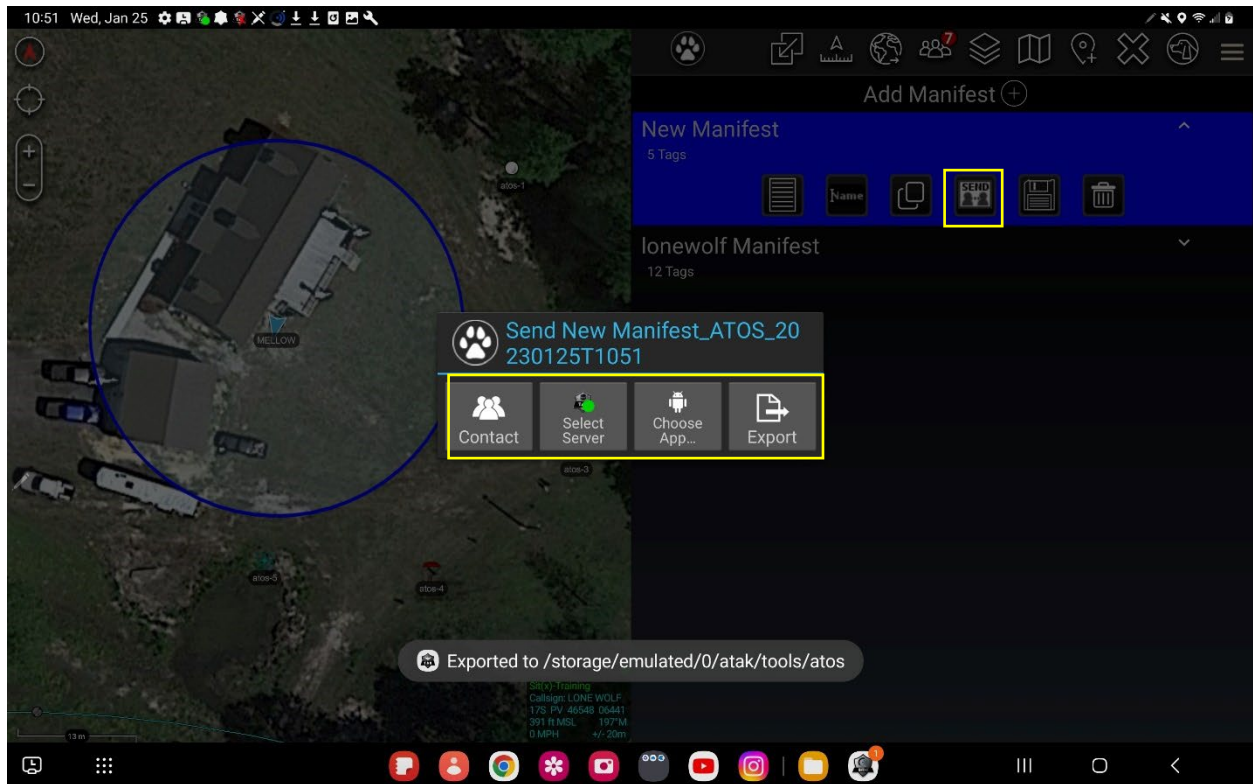




## Creating a new manifest



## Sharing a manifest



Note: This feature allows the user to preprogram and add multiple tag details without having to turn on the Command Link and tracking devices.



This information also contained as an E-Label, location in software application:

Android Tactical Assault Kit (ATAK) App on Android  
\\Main Menu\\ATOS\\Regulatory

## Regulatory Statement

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."

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Class A devices, intended for use in commercial, industrial, or business environments, must include the following statement in the user manual:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

## **Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must be installed and operated with a minimum distance of 2cm between the radiator and the human body.

## Contact Us

**Tough Stump Technologies at:**

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