

MorosX

<https://www.MorosX.com>

User Manual for the [MorosX IP Mesh Unit](#)

TODO:

Key information

Wifi Network Name: TAK_AP

Wifi Network default password: offgrid@8403

Wifi default security level: PSK2. PSK2 was chosen for maximum compatibility. You can modify this in LuCi settings if desired. **TODO: Add manual section for LuCi network security modification**

Device IP and LuCI URL: Follow the instructions in the section titled "[Locating Device IP and LuCI URL](#)" to locate the device's unique IP address and URL

LuCI login: root

LuCI default password: offgrid@8403

ATAK-CIV version used in this manual: 5.6.0.12 (9c9a5897)

Vx Voice Plugin Version used in this manual: 2.1.0 (20251122) - [5.6.0]

Note for Windows users:

When a windows laptop connects to TAK_AP you will need to use the **board's IP address to access LuCi** because you will not be able to directly connect to the board's hostname (connects but can't reach fa42.local). Windows doesn't support mDNS natively so .local hostnames don't resolve. You need to bookmark your board's IP address directly, or install Bonjour on the Windows machine. To find the board's IP address take the following steps:

- 1. Connect to the TAK_AP wifi access point (default password: offgrid@8403)
- 2. On your windows machine open a command prompt and type "ipconfig"
- 3. Look for a wifi entry similar to the following

```
Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : lan
    IPv4 Address. . . . .           : 192.168.0.181
    Subnet Mask . . . . .           : 255.255.0.0
    Default Gateway . . . . .       : 192.168.250.66
```

- 4. The IP address across from "default gateway" is you board's ip address.

Note for StarLink users: If you want to share an internet connection over the mesh network from a StarLink device, you must follow the instructions in the section titled "[Use case 3 - Hardwired StarLink Internet sharing \(ethernet port as DHCP client\) \[Recommended\]](#)". The StarLink internet must be shared via a direction ethernet connection to a single device and then broadcast over the mesh network. This is because the StarLink device does not allow for the user to configure the radio control channel of the StarLink wifi network, resulting in radio thrashing due to the default of channel 6 which is present on the MorosX IP Mesh Unit devices.

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Introduction

This document describes the most common use cases for the MorosX SBC IP-Radio as well as configuration steps to achieve those use cases as needed. In addition, ATAK configuration and usage are discussed.

Locating Device IP and LuCI URL

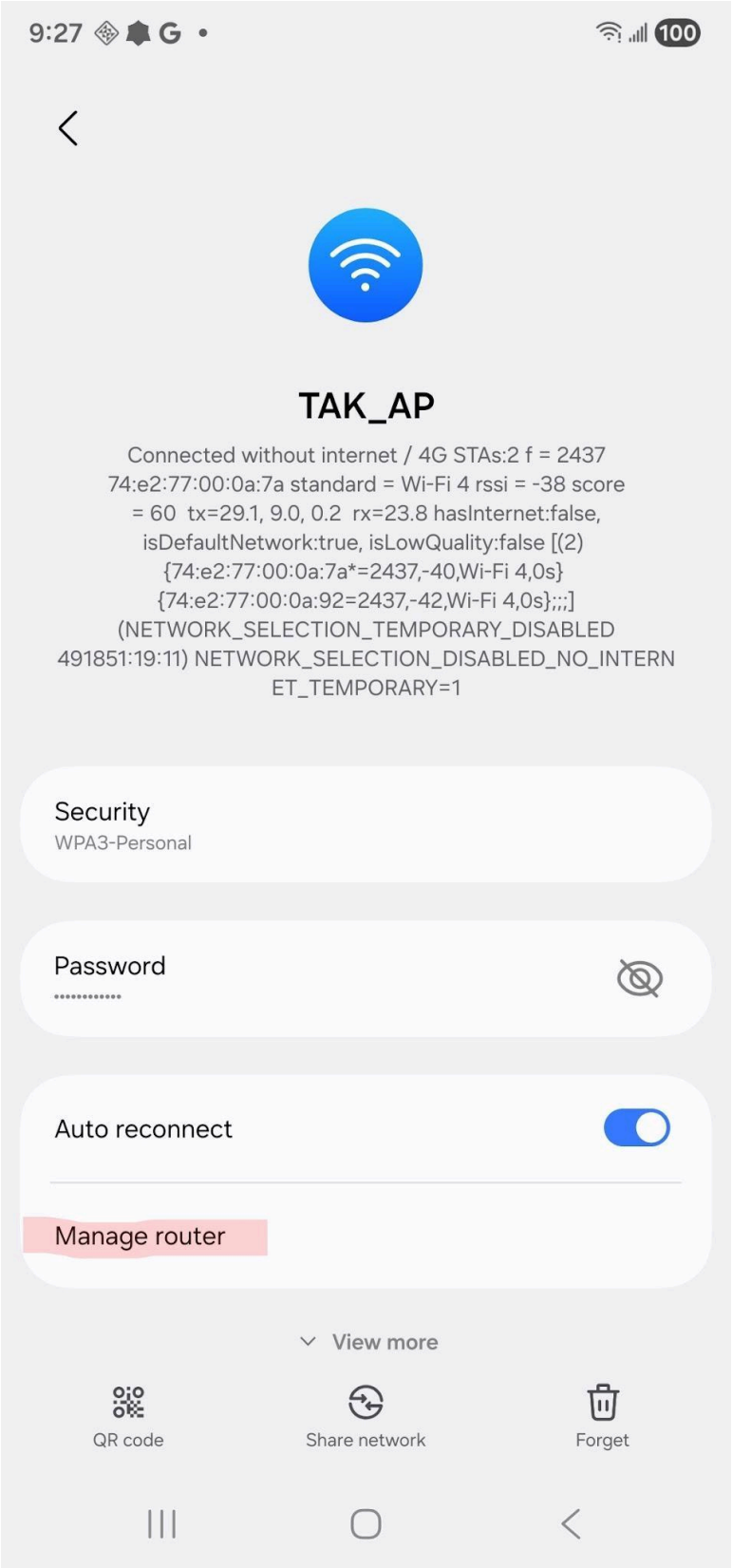
Note on Custom User IP addresses: If you set a custom IP in LuCI, the ip address will be preserved after reboot. It is also preserved by default after a firmware update but you **must** leave the first checkbox “ **Keep settings and retain the current configuration**” selected. If you deselect this checkbox during a firmware update, your device will revert to it's auto-calculated IP address based on the last two octets of the IP Mesh Unit's MAC address. Note that the device can always be accessed using its unique hostname (such as fa42.local in the manual examples) regardless of IP changes.

The devices are assigned unique IP addresses based on the last two octets of the device's MAC address.

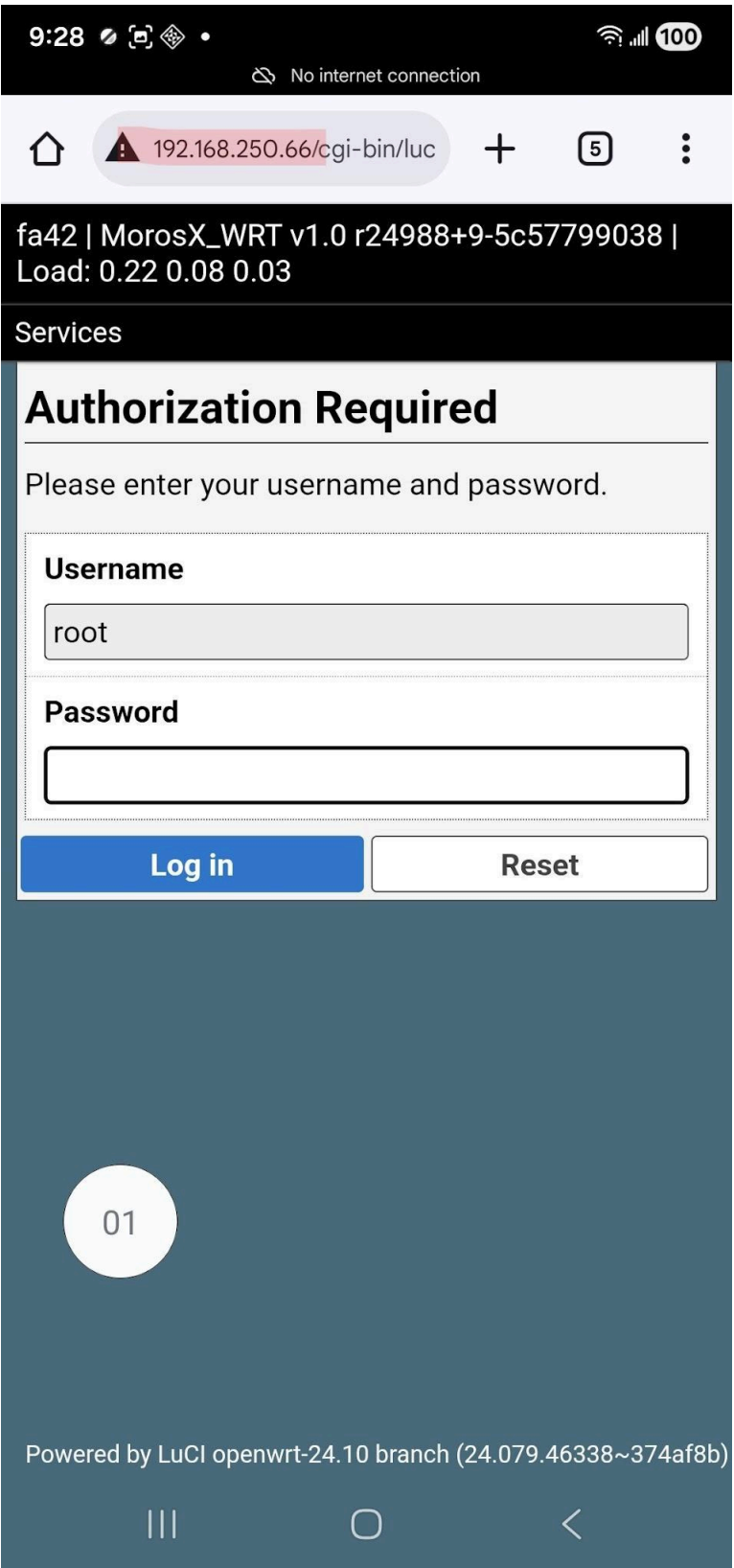
Samsung Phone IP Discovery

To find this unique IP using a **Samsung phone**, follow these steps.

1. Power off all other IP Mesh Units or move the device out of range of any other MorosX device serving TAK_AP (this guarantees that step 2 connects you to the correct board)
2. Power on the IP Mesh Unit and wait for the “TAK_AP” WiFi network to appear. Connect to the TAK_AP network using the password “offgrid@8403” Then navigate to the detailed WiFi network page by pressing on the gear icon next to the network name.
3. Click on the manage router option



4. You will then be sent to the LuCI login screen. The unique ip address for that device is shown in the address bar. And the unique hostname is shown in the top left (“fa42” in the example image). You can access the LuCI interface from that point forward using either the full ip or the hostname + .local. So, for example, in the image shown the full URL would be fa42.local



IP discovery for all other platforms

1. Power off all other MorosX radios or move the device out of range of any other MorosX device (this guarantees that step 2 connects you to the correct board)
2. **Connect to WiFi:** Connect your windows or linux laptop to TAK_AP.
3. Find the Gateway IP: Since the board is acting as the AP and likely the DHCP server (or at least the gateway), the board's IP address will be listed as the "Default Gateway" or "Router" in the user's network settings.

Windows:

1. Connect to TAK_AP.
2. Open Command Prompt (cmd).
3. Type: ipconfig
4. Look for "Default Gateway". That is the IP address of the board.
5. Example Output: Default Gateway : 192.168.123.45
6. Type that IP into the browser to access LuCI, or SSH into it.

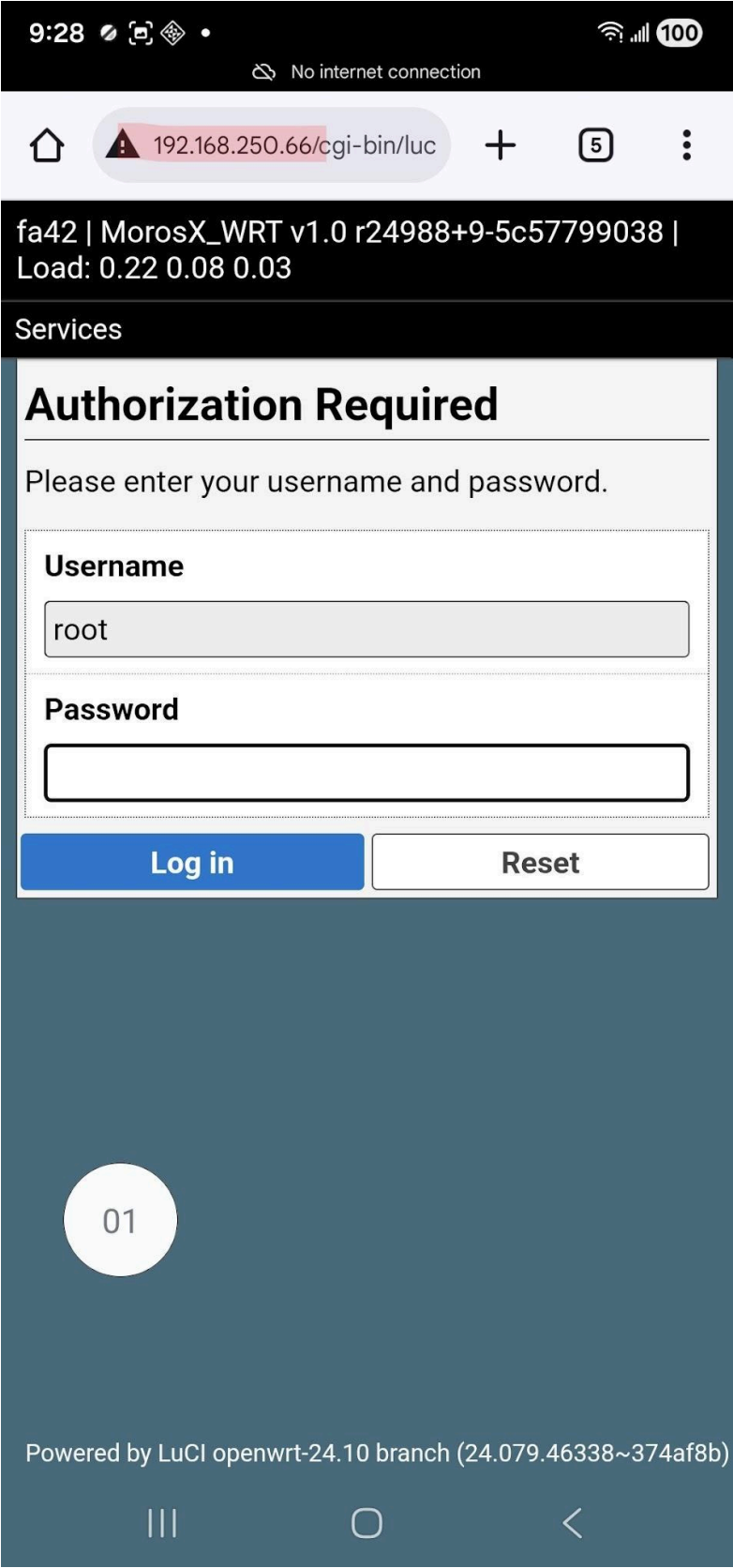
Linux / Mac:

1. Connect to TAK_AP.
2. Open Terminal.
3. Type: `ip route | grep default`
4. The IP address after `via` is the board's IP.
5. Example Output: `default via 192.168.250.62 dev wlp0s20f3 proto dhcp src 192.168.0.214 metric 20600`
6. In the example output above 192.168.250.62 is the ip address of the board.

Android / iOS:

1. Connect to WiFi.
2. Tap the "i" or "gear" icon next to the network name.
3. Look for "Router" or "Gateway". That is the IP address. On samsung phones look for "Manage Router" button under the connection settings for the TAK_AP network. Pressing that button will redirect you to the IP address of the board.

Once you have retrieved the IP address, you can access LuCI by navigating to that IP address in your browser. The hostname prefix is shown in the top left of the login page. In the screenshot below, the hostname prefix is "fa42". The device can then be reached using either the IP address or the hostname prefix + .local. So in the example below, the permanent URL would be "fa42.local"

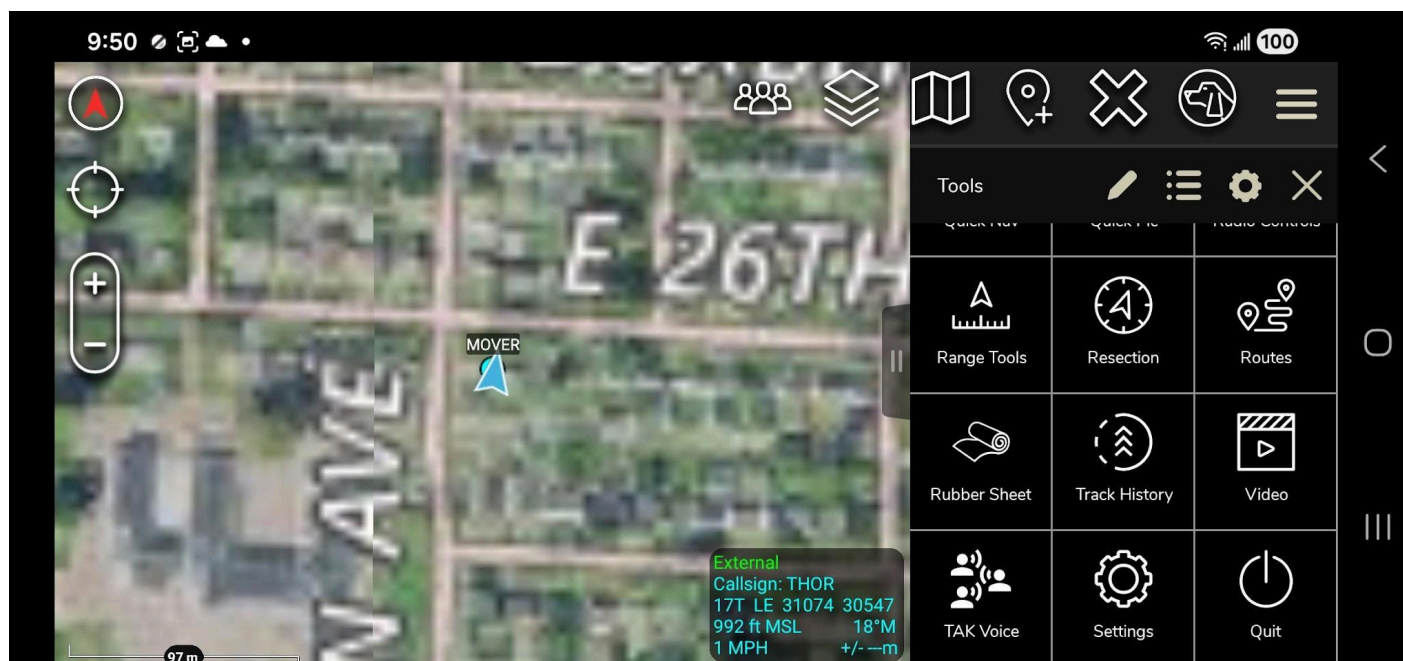


Setting up Vx Voice Plugin

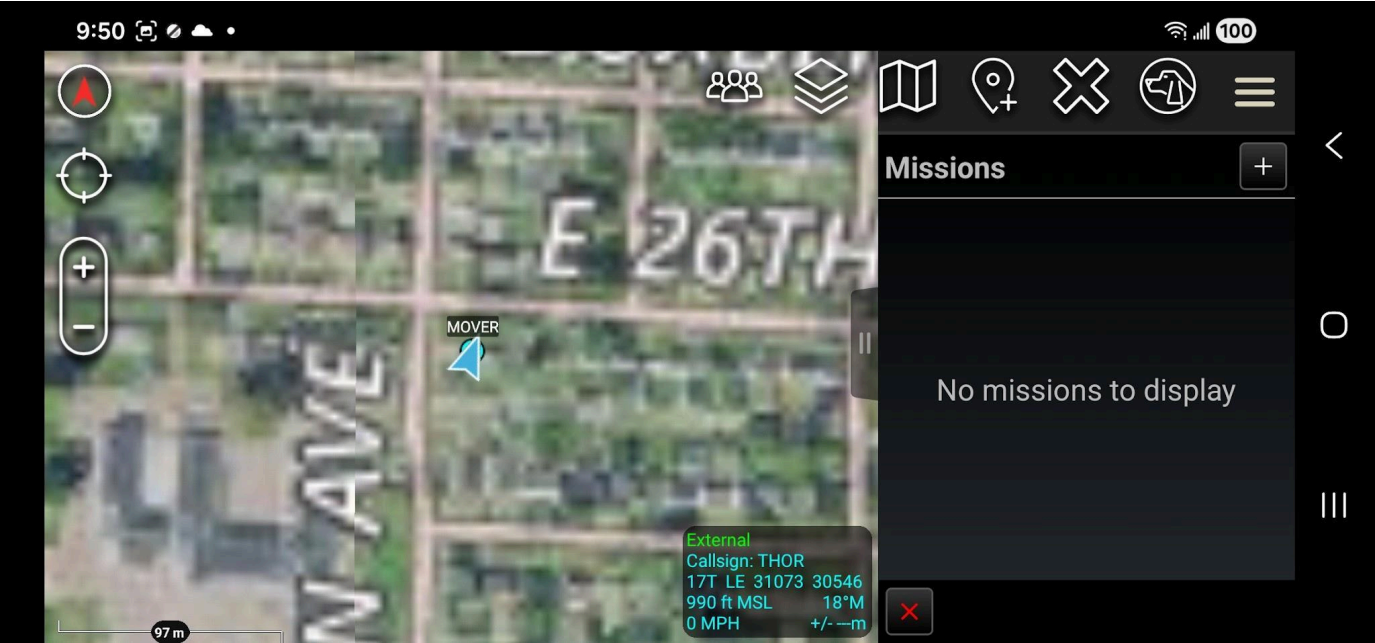
This manual contains guidance for Vx Voice Plugin 2.1.0 (20251122) - [5.6.0]

The radios are configured to send and receive on 234.1.1.3:7040. The radios can also receive from 239.2.3.1:7040 but they cannot send to this channel.

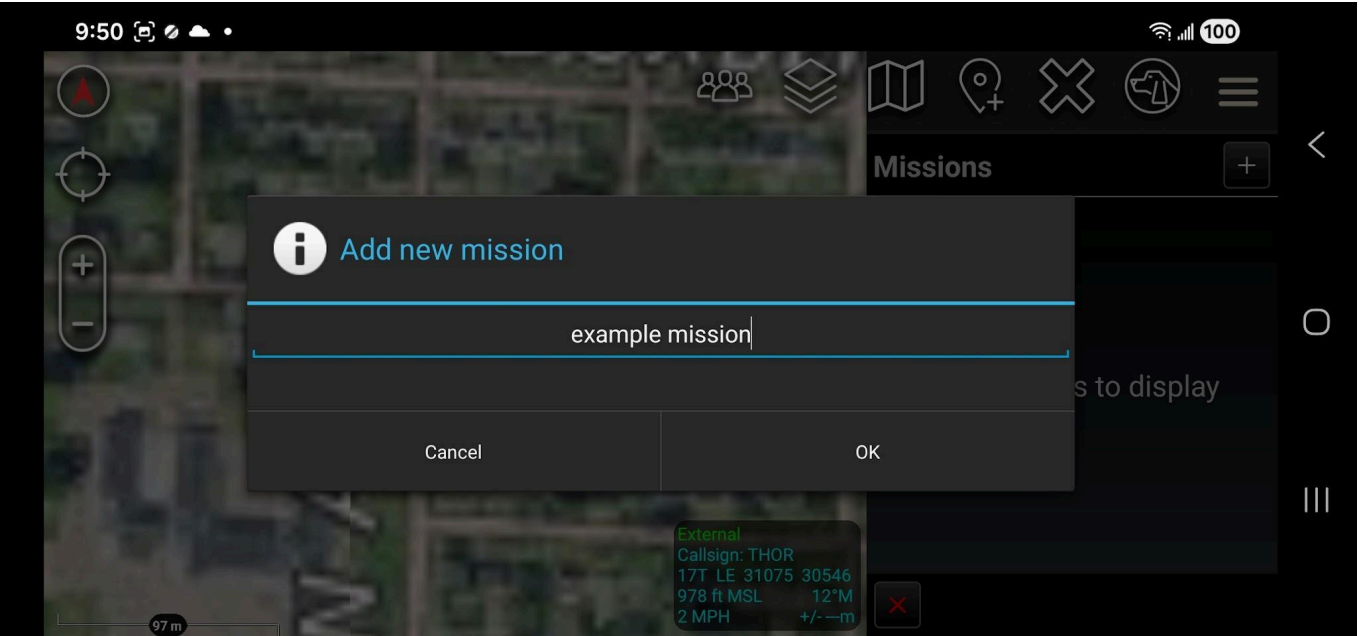
1. Once you have installed Vx Voice Plugin and configured its permissions in ATAK, navigate to the TAK Voice menu option. Shown in the bottom left of the screenshot below.



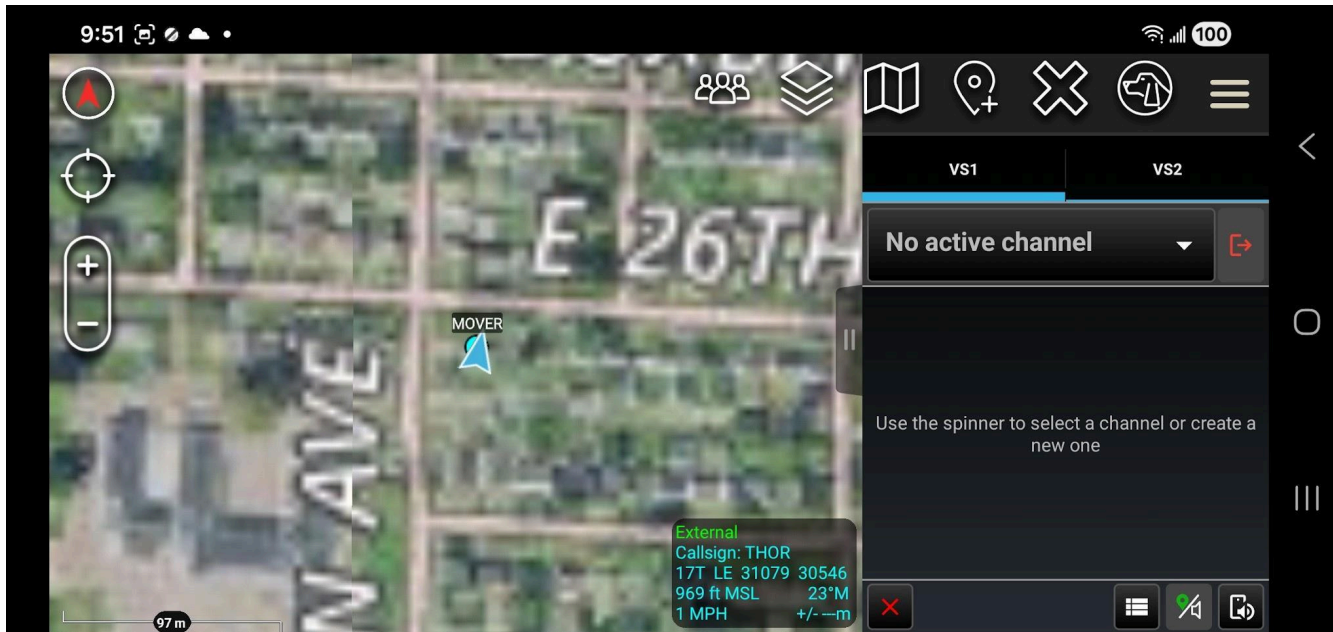
2. Click the plus icon to create a new mission



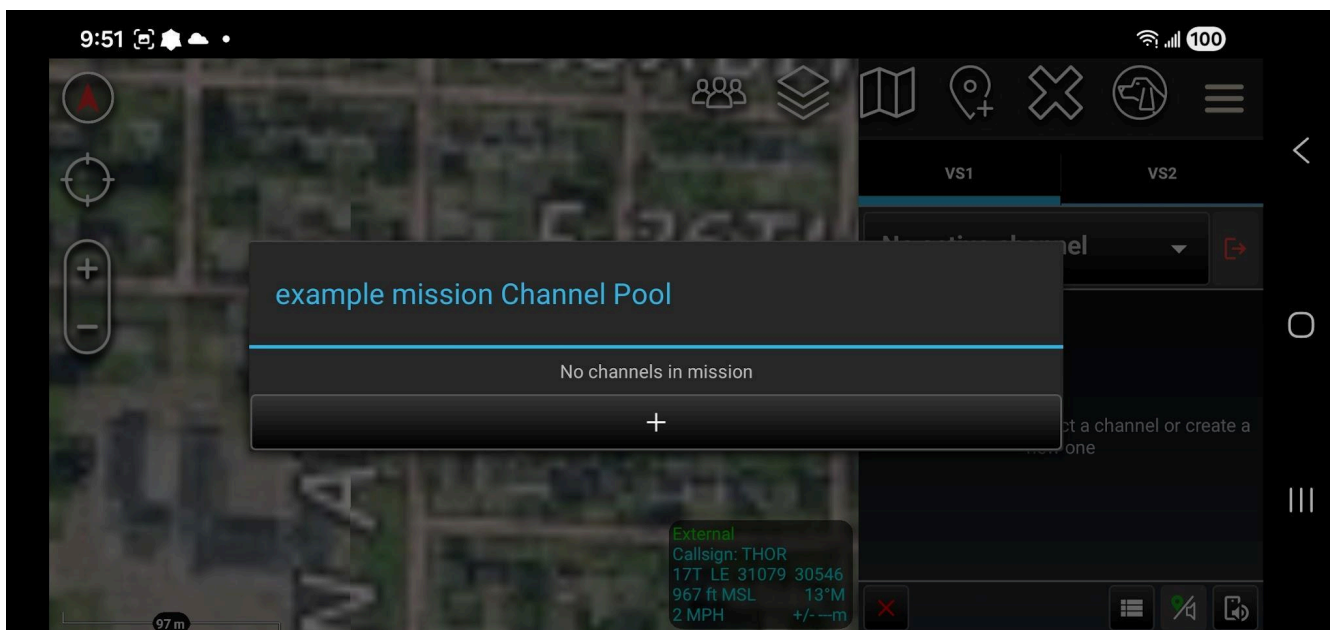
3. Add a mission name



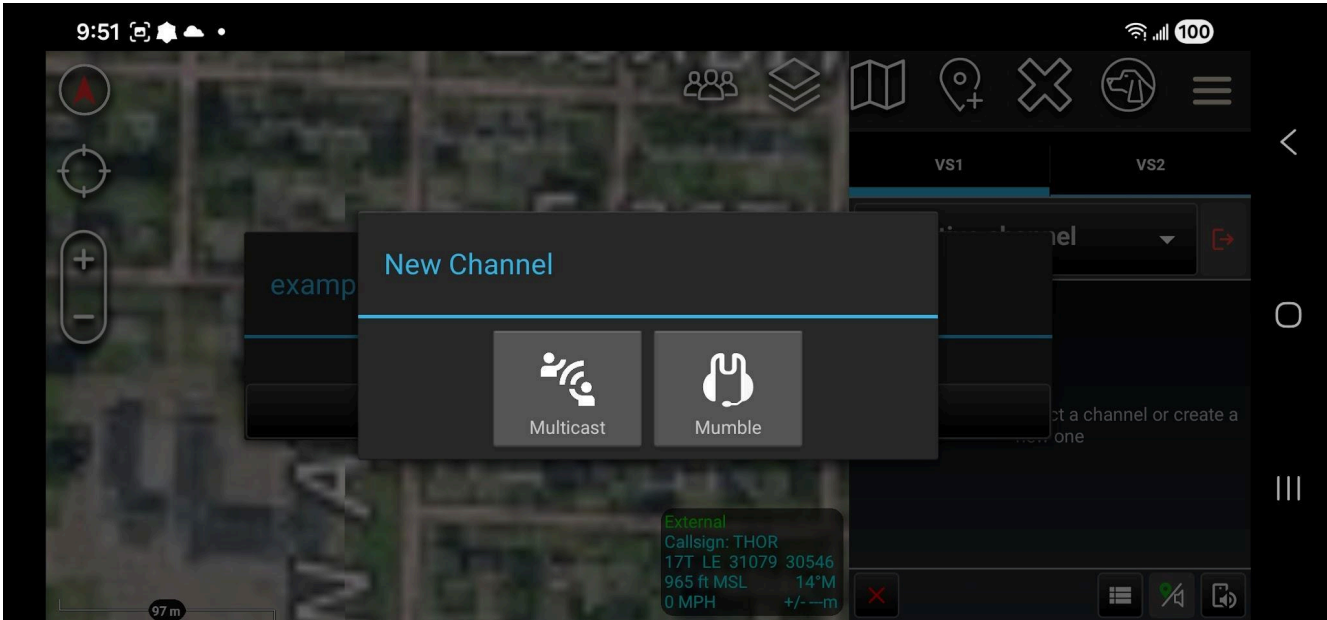
4. Click on the “No active channels” drop down



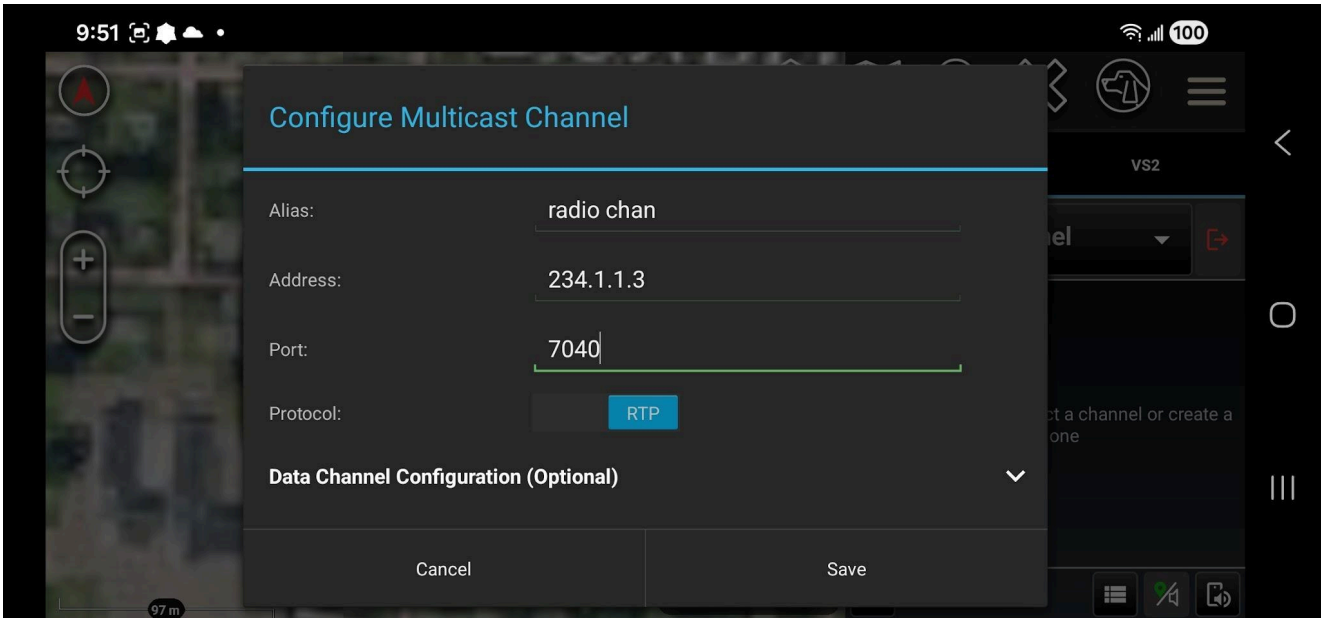
5. Click on the plus icon to create a new channel



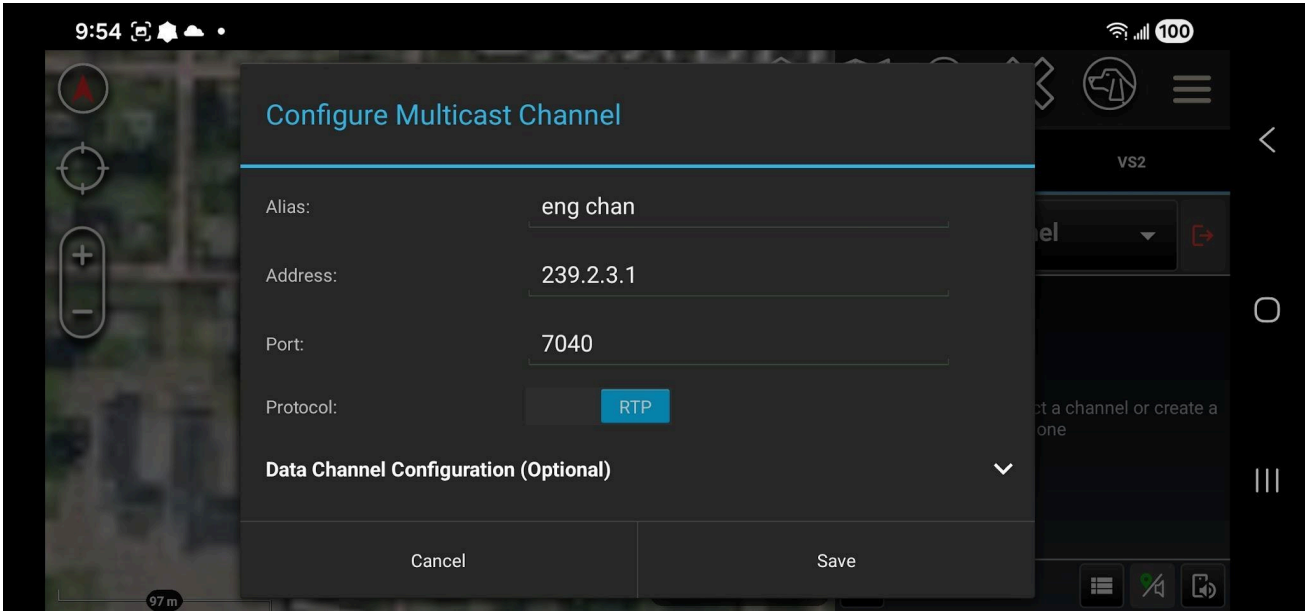
6. Select Multicast (Multicast will be used for both the Radio channel and the engineering channel)



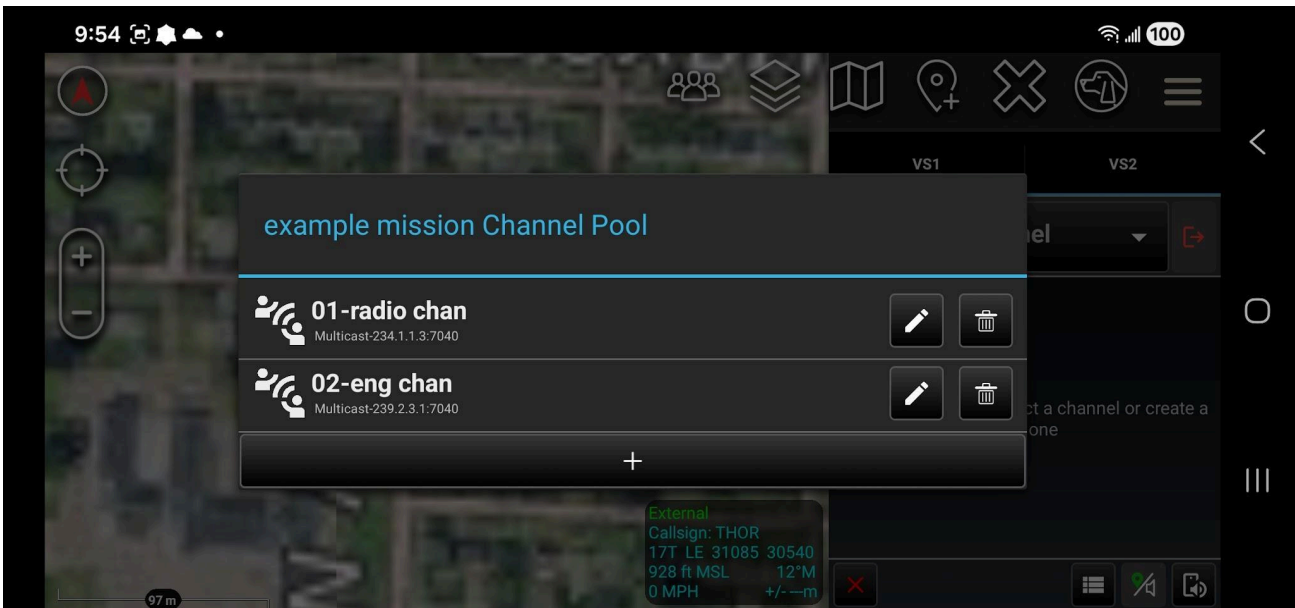
7. Add the details for the radio channel



8. Create a new channel and add the details for the engineering channel



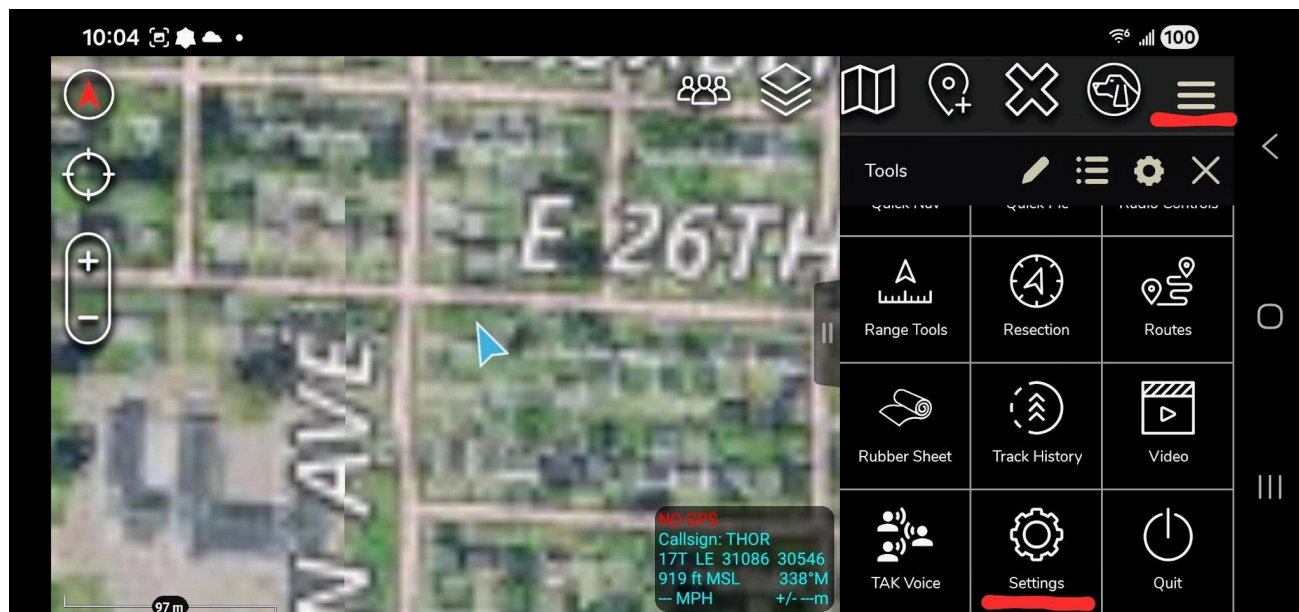
9. You can now choose your active channel from the channel dropdown.



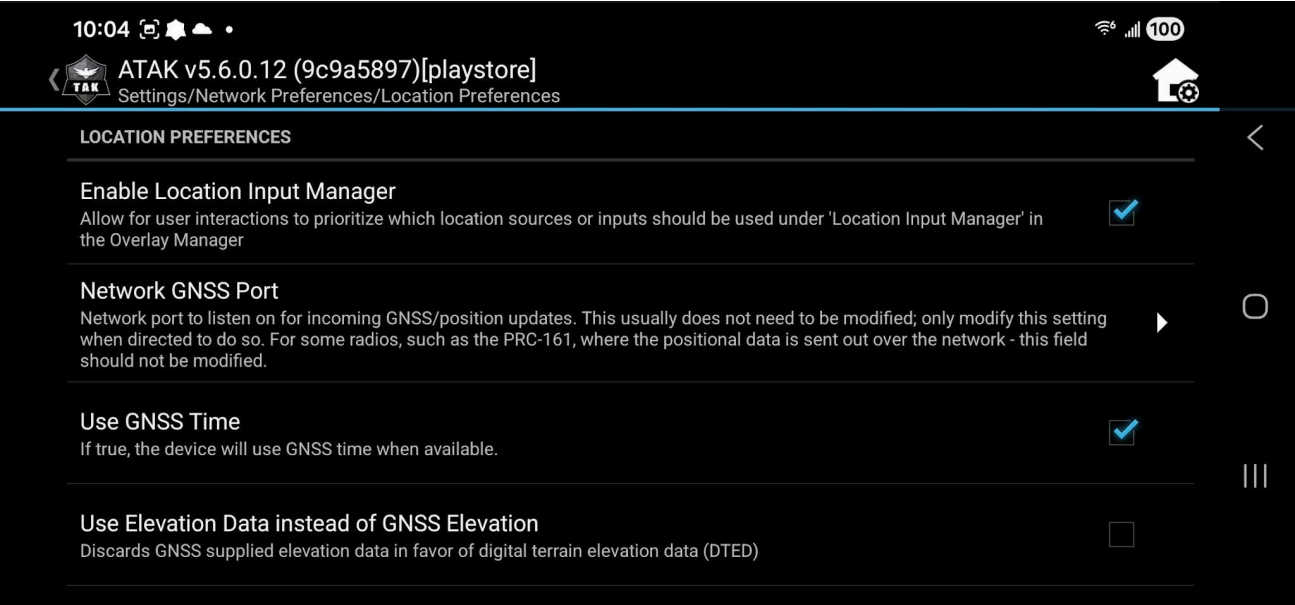
Setting up network GPS and reporting interval

This manual assumes ATAK-CIV version of 5.6.0.12 (9c9a5897). In this tutorial, we will configure GPS data streaming from the IP Mesh Unit as well as configure reporting intervals to eliminate dropped GPS fixes for other team members.

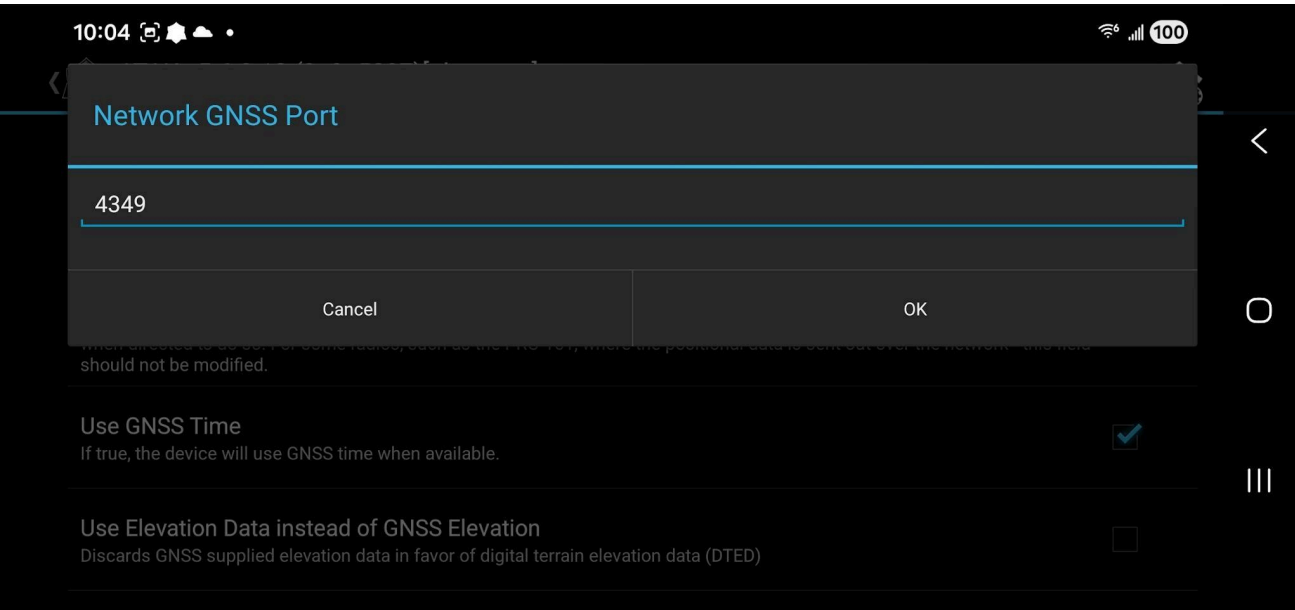
1. Begin by finding the gear “settings” icon in the Hamburger menu (red underlined)



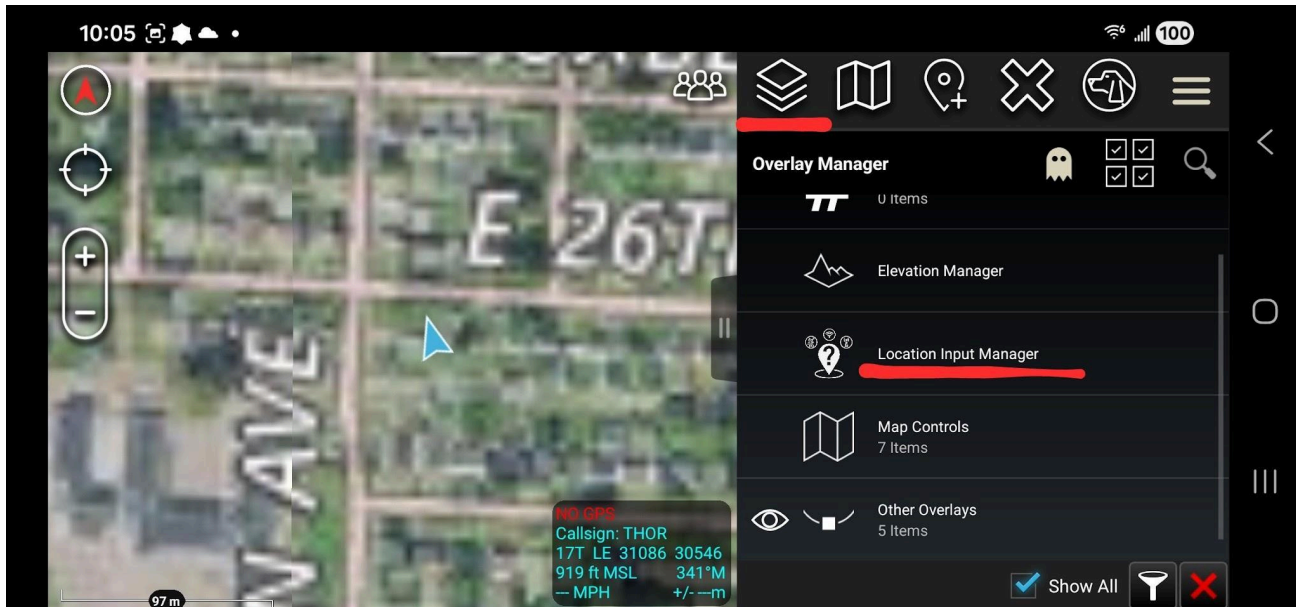
2. Within settings navigate to Settings > Network Preferences > Location Preferences. Ensure that “Enable Location Input Manager” is selected. Next, click on “Network GNSS Port”



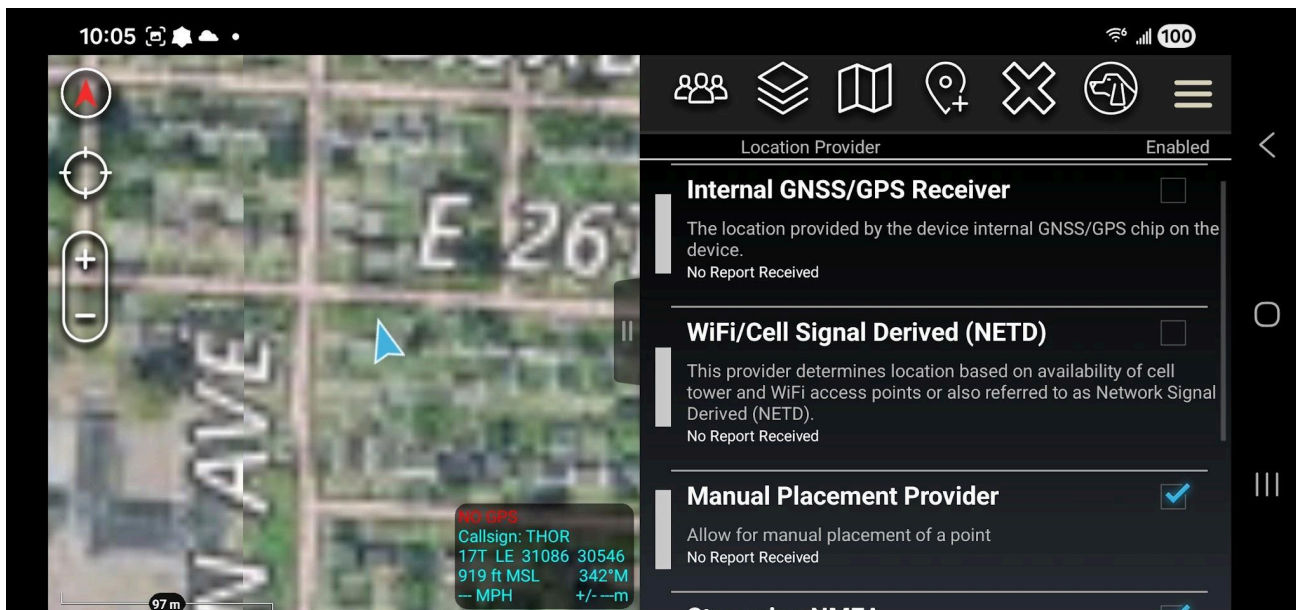
3. Set the Network GNSS Port to 4349



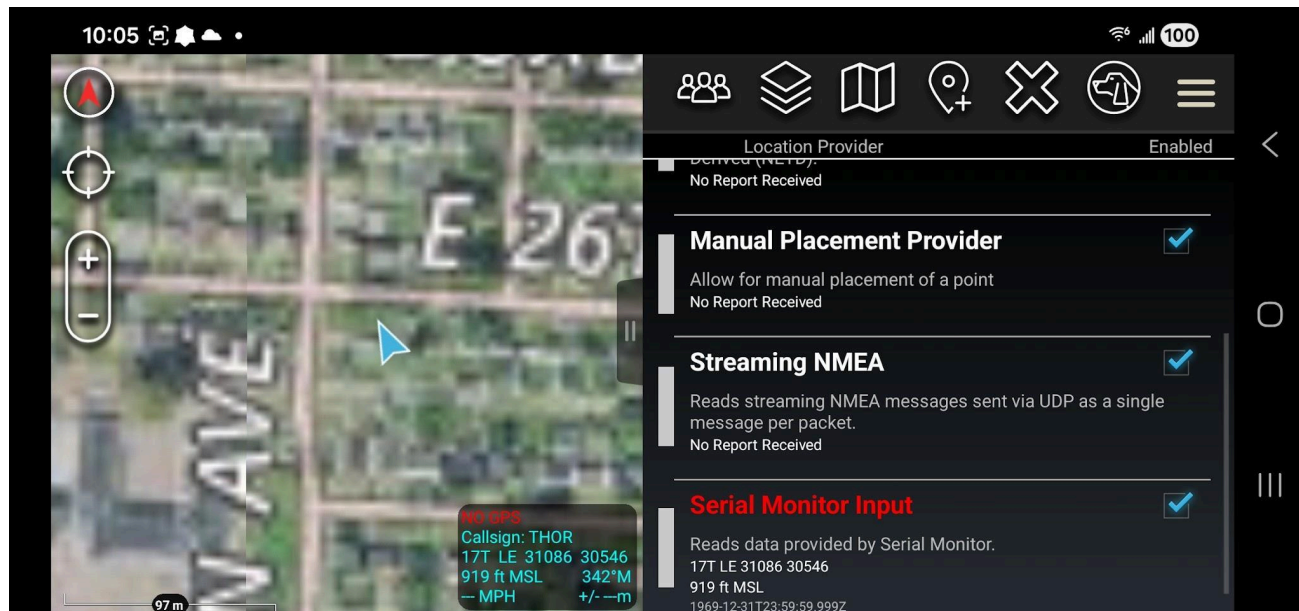
4. Next go back to the home layout and click on the layers button (the stack of squares) then click on “Location Input Manager”



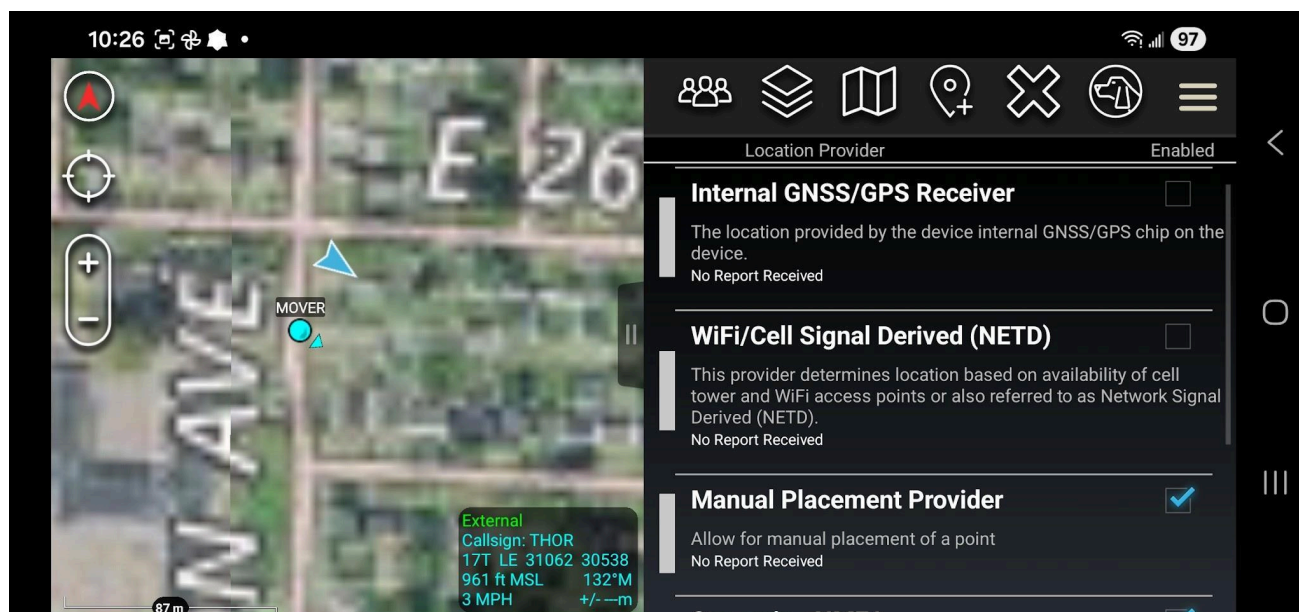
5. Within Location Input Manager, begin by deselecting “Internal GNSS/GPS receiver”, and also deselect “Wifi/Cell Signal Derived (NETD)”



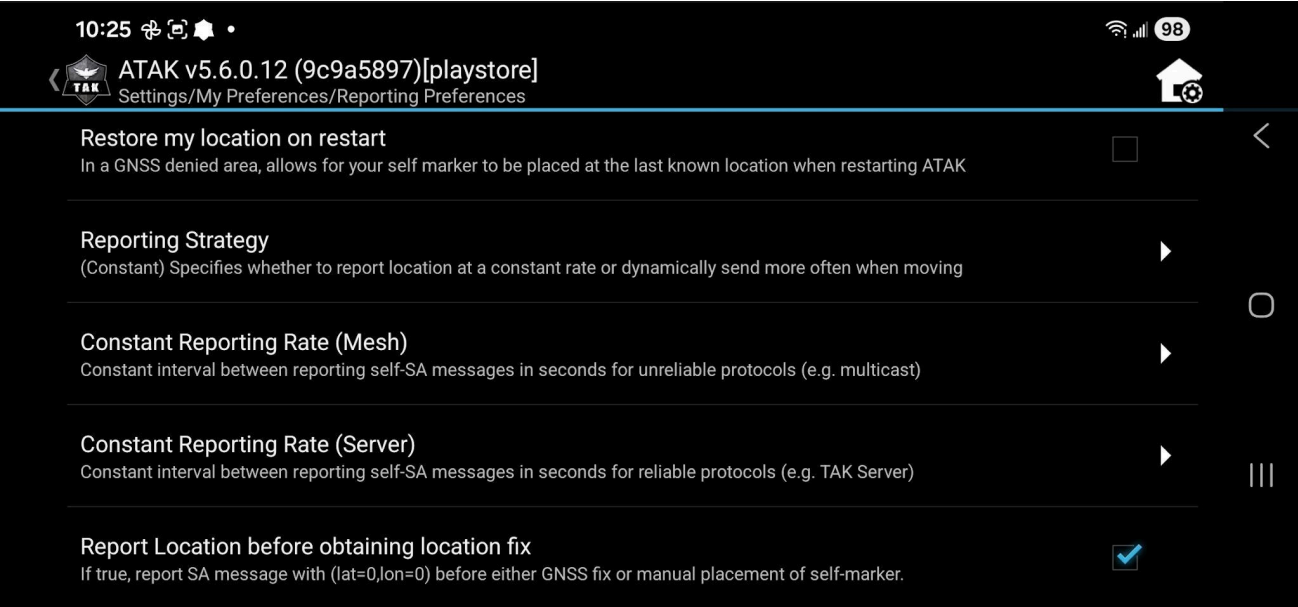
6. Leave the other three selected. “Manual Placement provider”, “Streaming NMEA”, and “Serial Monitor Input” should all remain selected.



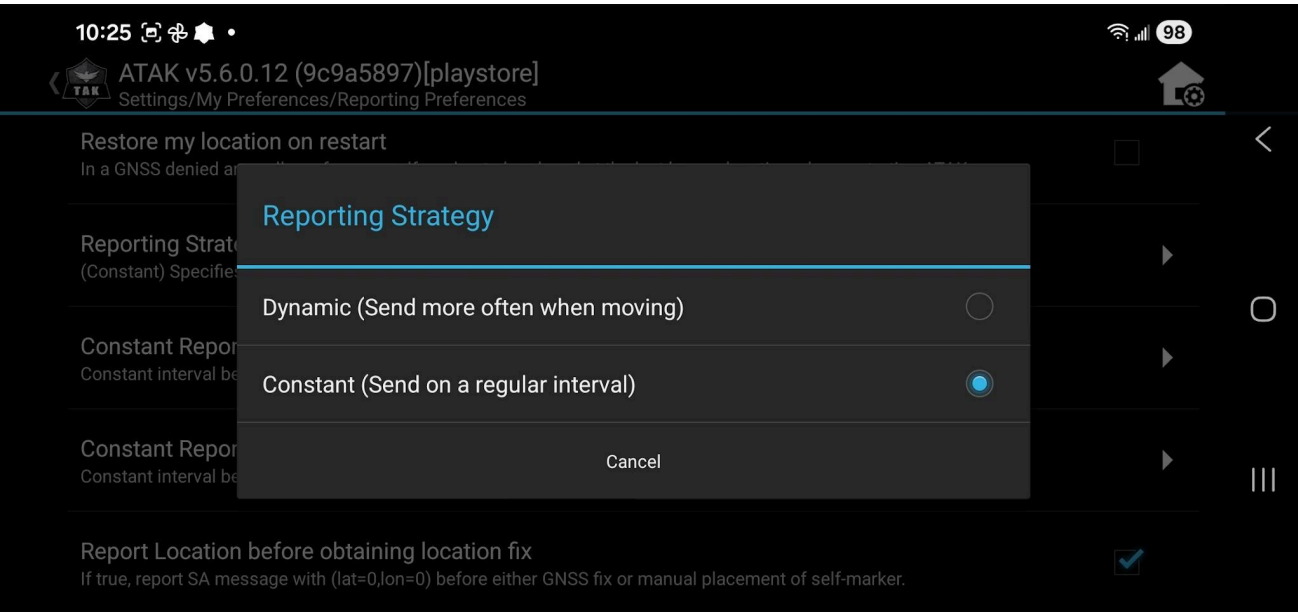
7. Your device is now capable of receiving a GPS fix from the IP Mesh Unit. You will see the fix displayed as “External” along with the GPS coordinates. Note that it can take up to 15 minutes for the IP Mesh Unit to get an initial GPS fix. So you may have to wait for a fix to appear after successful configuration.



8. The next step is to configure appropriate reporting intervals. By default, ATAK will stop displaying the GPS coordinates of other team members if they have not moved significantly for a period of time. This is not ideal and can lead to confusion regarding a team member’s location. So, we will configure ATAK to report GPS coordinates at a constant interval. To do so, open up settings again via the gear icon and navigate to Settings > My Preferences > Reporting Preferences



9. Once there click on “Reporting Strategy” and select “Constant (Send on a regular interval)”



10. You can alter the constant reporting rate using the setting shown in the screenshot below (May improve battery life)

Connecting to the board and LuCI

From a fresh boot, the board can be accessed several different ways.

Connection Method 1 - WiFi

Look for the WiFi Network called TAK_AP and connect to it using the password “offgrid@8403”.

Connection Method 2 - Ethernet connection

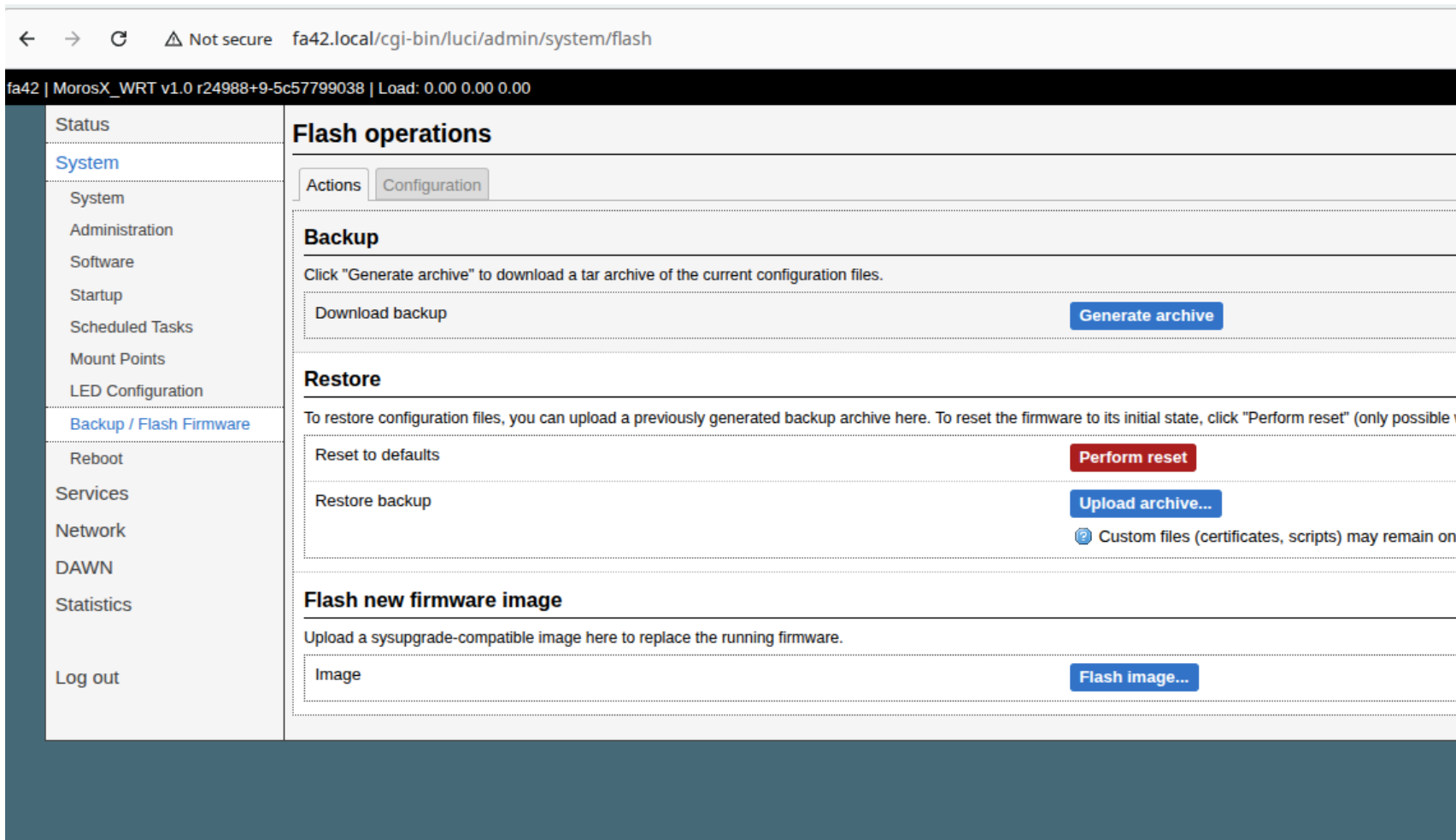
The ethernet port on the board is, by default, setup as a dhcp server. So you can plug in a laptop or you can plug in a phone using a USB-C ethernet adapter to the ethernet port. If you encounter issues, you can set up manual DHCP on the client device by first locating the IP Mesh Unit's ip address by following the steps in the section titled “[Locating Device IP and LuCI URL](#)”. Once you locate the device IP, set the client device to any unique ip address within the range of the device's ip. So, for example, if the device IP is 192.168.250.66, you can set the client device ip to anything from 192.168.250.0 to 192.168.250.255 with the exclusion of .66. Then, set the netmask to 255.255.255.0 and the gateway IP equal to the IP Mesh Unit IP. So, in the example of 192.168.250.66, the gateway IP would be 192.168.250.66

Flashing new firmware via LuCI

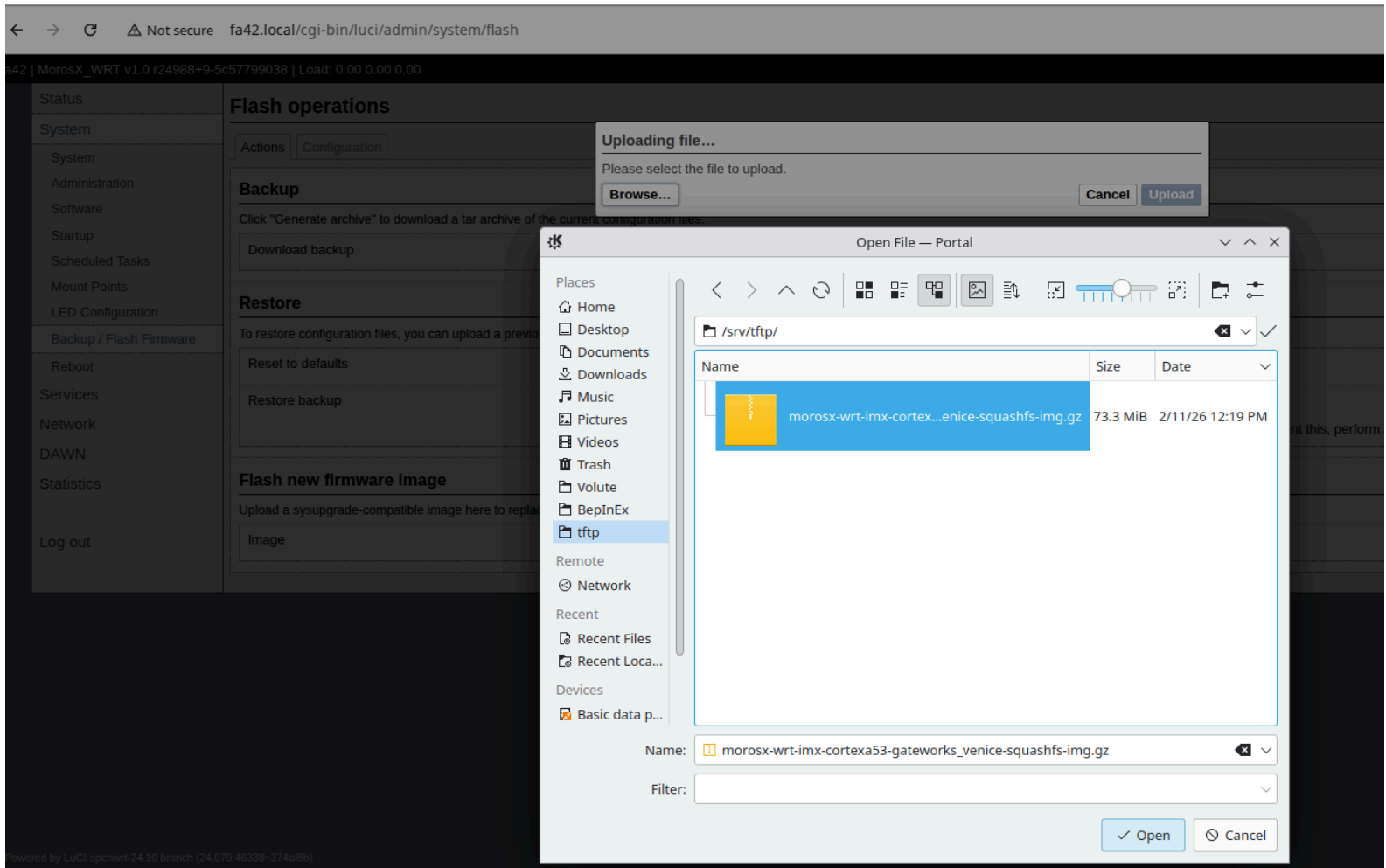
Prerequisites: Acquire the appropriate firmware version from the manufacturer. The file will be named “morosx-wrt-imx-cortexa53-gateworks_venice-squashfs-img.gz”

Begin by Navigating to the LuCI interface by following the steps in the section titled “[Locating Device IP and LuCI URL](#)”

1. Navigate to System > Backup / Flash Firmware



2. Use the file selector to choose the firmware file (ends with .gz)



3. When the file upload completes, you will be presented with several options. If you want the device to revert to only the settings defined in the firmware, you can deselect the first checkbox. But, most clients will want their settings preserved such as custom IPs.

fa42.local/cgi-bin/luci/admin/system/flash

5c57799038 | Load: 0.00 0.00 0.00

Flash operations

Actions

Configuration

Backup

Click "Generate archive" to download a tar archive of the current configuration

Download backup

Restore

To restore configuration files, you can upload a previously generated backup

Reset to defaults

Restore backup

Flash new firmware image

Flash image?

The flash image was uploaded. Below is the checksum and file size listed, compare them with the original file to ensure data integrity.
Click 'Continue' below to start the flash procedure.

Size: 73.29 MiB
MD5: f6a2be6ac9ab7afb262a4193e633f342
SHA256: e699de33f6a039e5152e9bd86fec06c0a7a489212c665700a21d5310688d9013

☒ Keep settings and retain the current configuration

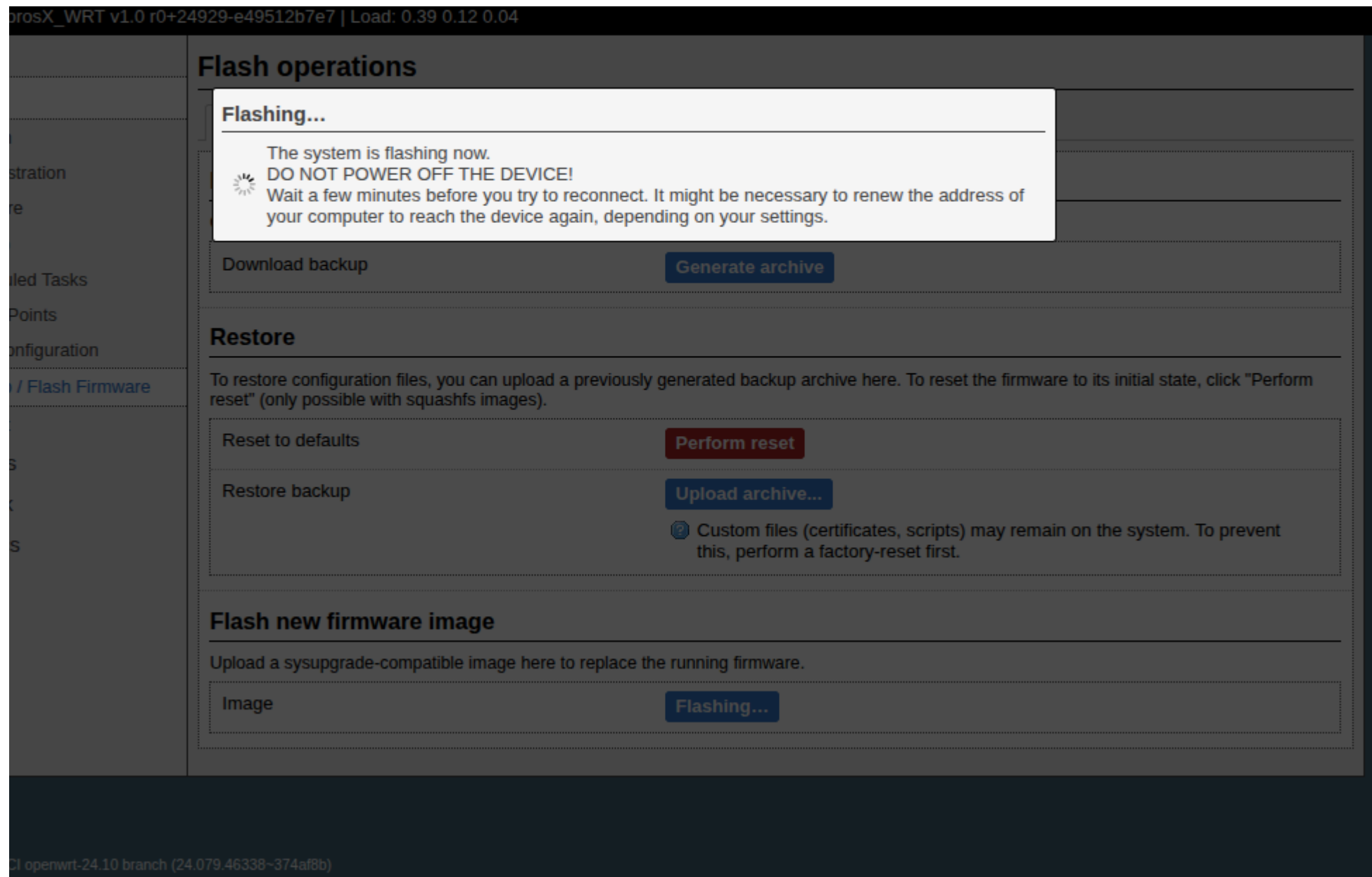
☐ Skip from backup files that are equal to those in /rom

☐ Include in backup a list of current installed packages at
/etc/backup/installed_packages.txt

Cancel Continue

Custom files (certificates, scripts) may remain on the system. To prevent this

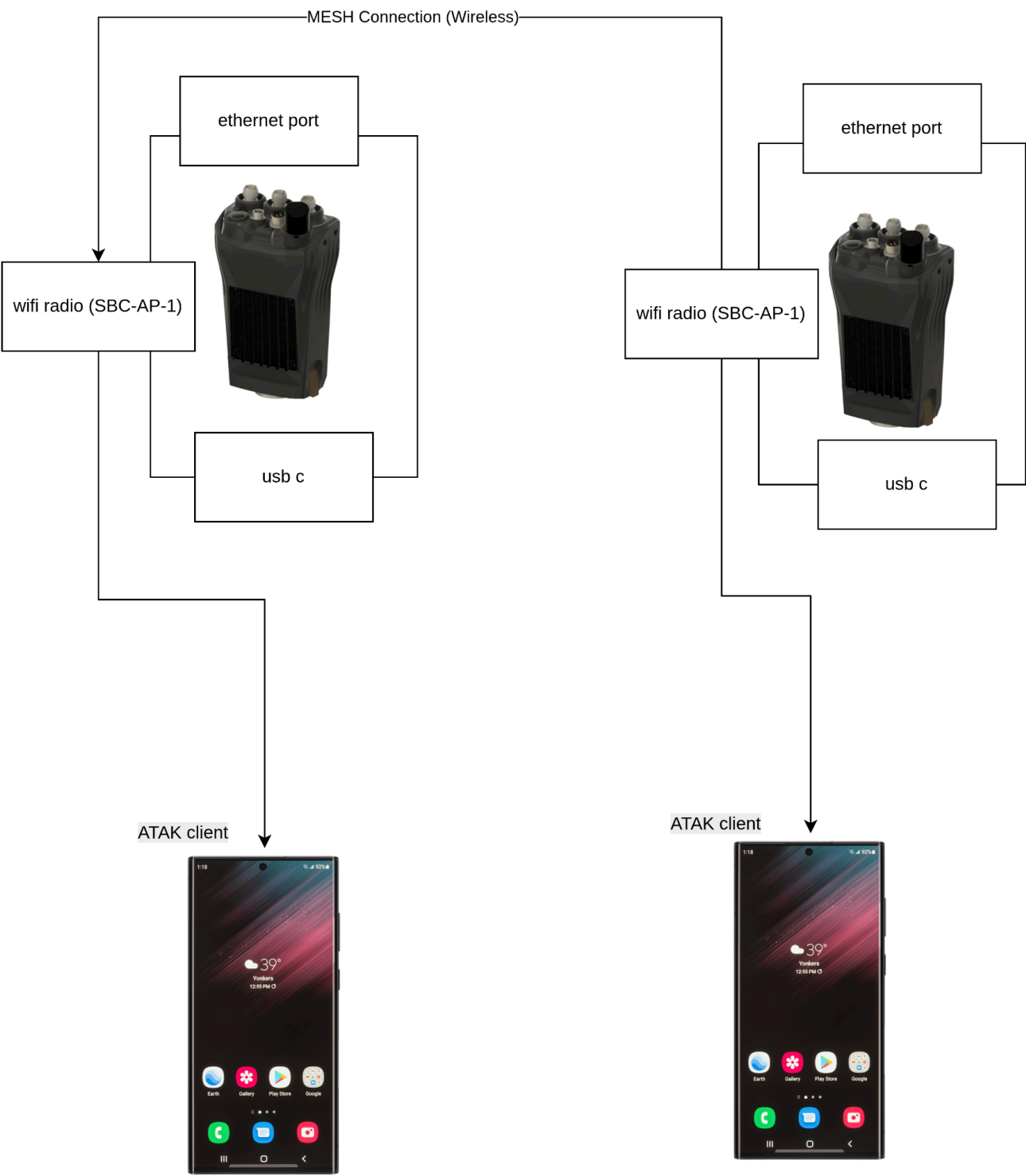
4. Wait for a few minutes for the flash to complete



5. Navigate back to the devices IP or unique hostname

Covered Use Cases

Use case 1 - ATAK connection to SBCs plus mesh network



The mesh network mode is configured to work automatically when two MorosX SBCs are in close enough proximity. You can verify that the mesh network is connected between two devices by logging onto LuCI and checking for the “Mesh Point” associated station. If a device fails to connect to the mesh network, try restarting the device by power cycling it.

192.168.51.1/cgi-bin/luci/admin/network/wireless

931-a2cee38855 | Load: 0.31 0.17 0.07

REFRESH

Wireless Overview

radio0

-56/-107 dBm

---/-107 dBm

Qualcomm Atheros QCN6024/9024/9074 802.11ax/b/g/n

Channel: 6 (2.437 GHz) | Bitrate: 24 Mbit/s

Mesh ID: MeshPoint | Mode: Mesh Point

BSSID: 76:E2:77:00:07:93 | Encryption: None

SSID: TAK_AP | Mode: Master

BSSID: 74:E2:77:00:07:93 | Encryption: WPA3 SAE (CCMP)

Restart

Scan

Add

Disable

Edit

Remove

Disable

Edit

Remove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
Mesh Point "MeshPoint" (wlan1)	76:E2:77:00:07:92	?	-17/-107 dBm	0.0 Mbit/s, 0 MHz 24.0 Mbit/s, 20 MHz

Save & Apply

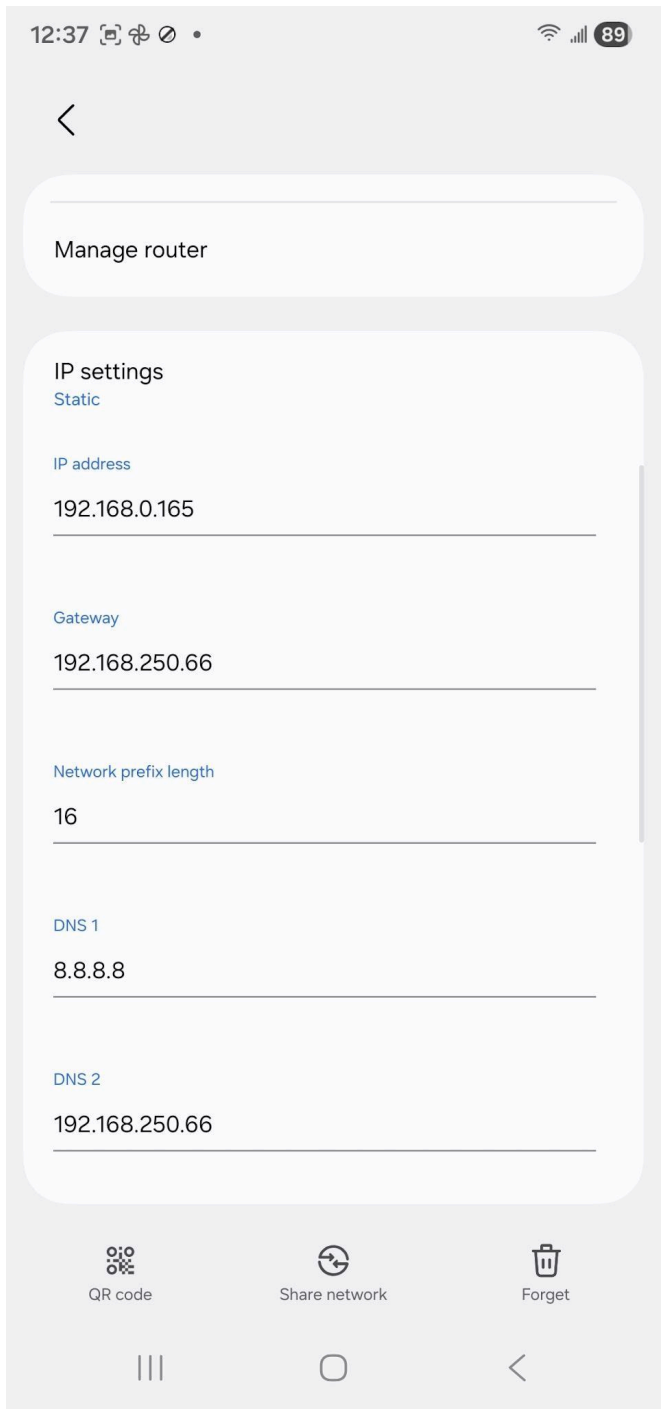
Save

Use case 2 - Wireless Internet sharing from External Wireless source (ethernet port as DHCP server)

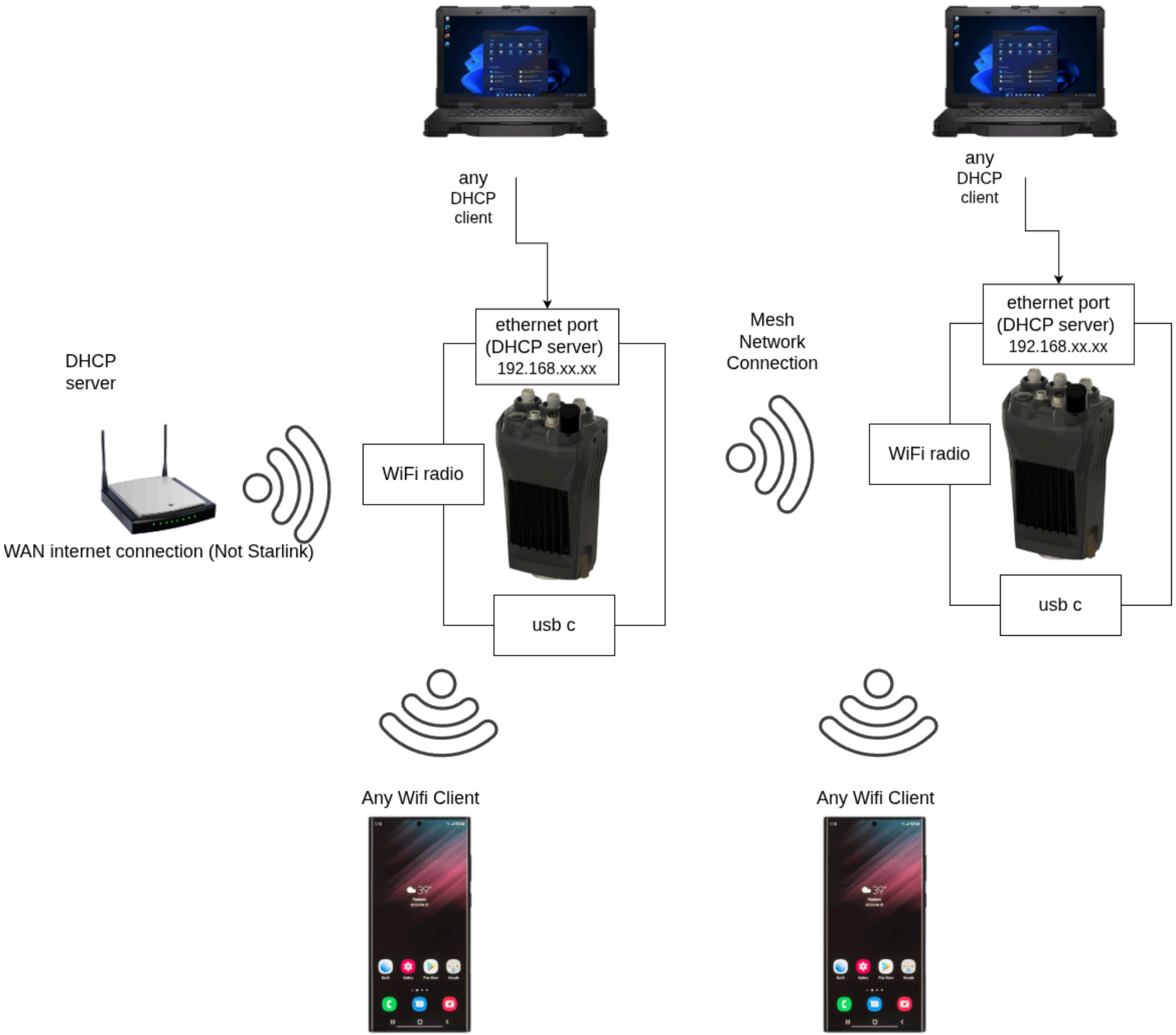
Important Note: All client devices that require network access outside of the mesh (AKA internet for phone, laptops, etc) connect must have their IP settings configure as Static with the following settings.

ipV4 address:	A unique number anywhere in the range 192.168.xx.xx
IpV4 Gateway	Set to the IP of the radio connected to the internet source
IpV4 netmask	255.255.0.0 (or equivalently, a network prefix length of 16)
DNS server 1	8.8.8.8
DNS server 2	Set to the IP of the radio connected to the internet source

Their Gateway IP address should be set to the IP address of the Mesh Unit that is providing internet NOT to the Wifi router to which the mesh unit is connected. You choose an IP address anywhere in the range [192.168.xx.xx](#) The screenshot below shows an example of a correct setup, assuming that the Gateway IP Mesh Unit's IP address is 192.168.250.66. You must use a netmask of 255.255.0.0 or equivalently, a network prefix length of 16.



Important Note: For the below scenario to work fully (meaning across the mesh network and to WiFi clients of the MorosX device) you must configure the broadcasting channel of the WAN internet connection to be channel 6 (channel 6 is the default channel for the MorosX TAK_AP access point and MeshPoint networks). If you just need to connect an ethernet DHCP client and/or if you just want to connect the MorosX device itself to the router, you can disregard the channel on the router. Use case 3 in the section below is the recommended approach for internet sharing because the user does not need to concern themselves with the radio channel whatsoever.



For the purposes of bridging a wireless network with internet access to a local ethernet client, the following screenshots apply. By default, the IP Mesh Unit operates as a DHCP server on its ethernet port. Begin by plugging the computer into the Ethernet port and navigating to LuCI.

The username is root and password is offgrid@8403

Follow the steps below once you have connected to LuCI either via a phone client over the wifi or via the DHCP client.

Step 1 - Navigate to Network > Wireless

OpenWrt | MorosX_WRT v1.0 r0+24916-5b9940e581 | Load: 0.08 0.09 0.03REFRESHING

Status

System

Services

Network

Interfaces

Wireless

Routing

DHCP and DNS

Diagnostics

SQM QoS

Firewall

Statistics

Log out

Status

System

HostnameOpenWrt

ModelGateworks Venice GW71xx-2x i.MX8MP Development Kit

ArchitectureARMv8 Processor rev 4

Target Platformimx/cortexa53

Firmware VersionMorosX_WRT v1.0 r0+24916-5b9940e581 / LuCI openwrt-24.10 branch 24.158.03388~a6f8361

Kernel Version6.1.71

Local Time2025-12-07 20:46:41

Uptime0h 5m 4s

Load Average0.05, 0.07, 0.03

Memory

Total Available3.65 GiB / 3.82 GiB (95%)

Used278.34 MiB / 3.82 GiB (7%)

Buffered4.43 MiB / 3.82 GiB (0%)

Cached142.88 MiB / 3.82 GiB (3%)

Step 2 - Scan for networks

OpenWrt | MorosX_WRT v1.0 r0+24916-5b9940e581 | Load: 0.01 0.05 0.02

REFRESHING

Status

System

Services

Network

Interfaces

Wireless

Routing

DHCP and DNS

Diagnostics

SQM QoS

Firewall

Statistics

Log out

Wireless Overview

radio0

Qualcomm Atheros QCA9880 802.11ac/b/g/n

Channel: 6 (2.437 GHz) | Bitrate: ? Mbit/s

---/-95 dBm

SSID: TAK_AP | Mode: Master

BSSID: 00:30:1A:4F:64:3C | Encryption: mixed WPA/WPA2 PSK (CCMP)

---/-95 dBm

Mesh ID: MeshPoint | Mode: Mesh Point

BSSID: 02:30:1A:4F:64:3C | Encryption: None

Restart

Scan

Add

Disable

Edit

Remove

Disable

Edit

Remove

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
No information available				

Save & Apply

Save

Ensure that the network you select uses channel 6. Select Join Network.

Join Network: Wireless Scan						
Signal	SSID	Channel	Mode	BSSID	Encryption	
-19 dBm	Laboratoire	6	Master	9A:28:AA:1F:05:E9	mixed WPA2/WPA3 PSK, SAE (CCMP)	Join Network
-17 dBm	Laboratoire_IoT	6	Master	9A:28:AA:1F:05:EA	WPA2 PSK (CCMP)	Join Network
-17 dBm	hidden	6	Master	CC:28:AA:1F:05:E8	mixed WPA2/WPA3 PSK, SAE (CCMP, GCMP-256)	Join Network
-33 dBm	Goth Hipster Engineering	10	Master	90:93:5A:53:4A:42	mixed WPA2/WPA3 PSK, SAE (CCMP, GCMP-256)	Join Network
-33 dBm	dropletmps	10	Master	92:93:5A:53:8D:D1	WPA2 PSK (CCMP)	Join Network
-58 dBm	THEGOAT71	6	Master	2C:67:BE:6F:8D:02	WPA2 PSK (CCMP)	Join Network
-61 dBm	Cristian	11	Master	BC:9A:8E:FE:5A:D4	WPA2 PSK (CCMP)	Join Network
-65 dBm	SpectrumSetup-73	6	Master	FC:12:63:B8:42:71	WPA2 PSK (CCMP)	Join Network
-67 dBm	SpectrumSetup-63	6	Master	A4:97:33:95:79:61	WPA2 PSK (CCMP)	Join Network
-67 dBm	SpectrumSetup-7CC3	11	Master	A0:8A:06:83:7C:C0	WPA2 PSK (CCMP)	Join Network
-68 dBm	watUtalkinboutWilliss	1	Master	A0:8A:06:5A:97:0A	WPA2 PSK (CCMP)	Join Network
-75 dBm	tiff713e	6	Master	84:ER:3F:FF:71:3F	WPA2 PSK (CCMP)	Join Network

Step 3 - Once you have chosen a network, fill out the WPA passphrase (also known as the WiFi password) from the list click connect and then leave the firewall-zone as WAN.

OpenWrt | MorosX_WRT v1.0 r0+24916-5b9940e581 | Load: 0.01 0.05 0.02 REFRESHING

Status **Wireless Overview**

Joining Network: "Laboratoire"

Replace wireless configuration	☐ Check this option to delete the existing networks from this radio.
Name of the new network	wwan Name for OpenWrt network configuration. (No relation to wireless network name/SSID) The allowed characters are: A-Z, a-z, 0-9 and _
WPA passphrase	 * Specify the secret encryption key here.
Lock to BSSID	☐ Instead of joining any network with a matching SSID, only connect to the BSSID 9A:28:AA:1F:05:E9.
Create / Assign firewall-zone	wan (empty) Choose the firewall zone you want to assign to this interface. Select <i>unspecified</i> to remove the interface from the associated zone or fill out the <i>custom</i> field to define a new zone and attach the interface to it.

Cancel Submit

Step 4 - Leave the default configuration alone

OpenWrt | MorosX_WRT v1.0 r0+24916-5b9940e581 | Load: 0.01 0.05 0.02

REFRESHINGUNSAVED CHANGES: 17

Status

Wireless Overview

Wireless Network: Client "Laboratoire" (radio0.network3)

Device Configuration

General SetupAdvanced Settings

Status

Mode: Client | SSID: Laboratoire

--- dBmWireless is not associated

Wireless network is enabled

Disable

Operating frequency

Mode

AC

Width

40 MHz

Maximum transmit power

30 dBm (1000 mW)

- Current power: unknown

Specifies the maximum transmit power the wireless radio may use. Depending on regulatory requirements and wireless usage, the actual transmit power may be reduced by the driver.

Interface Configuration

General SetupWireless SecurityAdvanced SettingsWLAN roaming

Mode

Client

ESSID

Laboratoire

BSSID

Network

wwan:

Choose the network(s) you want to attach to this wireless interface or fill out the custom field to define a new network.

DismissSave

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Step 6 - Make sure to Save and Apply your changes.

ire fa42.local/cgi-bin/luci/admin/network/wireless



10-5c57799038 | Load: 0.00 0.04 0.04

Wireless Overview

radio0	Qualcomm Atheros QCN6024/9024/9074 802.11ax/b/g/n Channel: 6 (2.437 GHz) Bitrate: 258 Mbit/s	Restart	Scan
-18/-107 dBm	Mesh ID: MeshPoint Mode: Mesh Point BSSID: 76:E2:77:00:0A:7A Encryption: None	Disable	Edit
-40/-107 dBm	SSID: TAK_AP Mode: Master BSSID: 74:E2:77:00:0A:7A Encryption: WPA3 SAE (CCMP)	Disable	Edit
-18/-107 dBm	SSID: Laboratoire Mode: Client BSSID: 72:E2:77:00:0A:7A Encryption: WPA3 SAE (CCMP)	Disable	Edit

Associated Stations

Network	MAC address	Host	Signal / Noise	RX Rate / TX Rate
Mesh Point "MeshPoint" (wlan1)	76:E2:77:00:0A:92	?	-18/-106 dBm	0.0 Mbit/s, 0 MHz 258.0 Mbit/s, 20 MHz, HE-MCS 10, HE-NSS 2
Access Point "TAK_AP" (wlan0)	46:F8:A9:B4:37:BB	fd10:6d12:fb4:0:bd59:3902:1cac:c6ae	-48/-106 dBm	144.4 Mbit/s, 20 MHz, MCS 15, Short GI 144.4 Mbit/s, 20 MHz, MCS 15, Short GI
Access Point "TAK_AP" (wlan0)	4C:2E:5E:8D:E3:89	192.168.0.165	-34/-106 dBm	144.4 Mbit/s, 20 MHz, MCS 15, Short GI 6.0 Mbit/s, 20 MHz
Access Point "TAK_AP" (wlan0)	4C:03:4F:F0:E5:0B	mark-ubuntu-aug-25.lan (192.168.0.214, fe80::49a8:aa58:8b3b:6ce)	-66/-106 dBm	52.0 Mbit/s, 20 MHz, MCS 11 144.4 Mbit/s, 20 MHz, MCS 15, Short GI
Client "Laboratoire" (phy0-sta0)	9A:28:AA:1F:05:E9	?	-55/-106 dBm	270.8 Mbit/s, 20 MHz, HE-MCS 11, HE-NSS 2, HE-GI 1 258.0 Mbit/s, 20 MHz, HE-MCS 10, HE-NSS 2

You will now have internet access across the mesh network. Be sure to configure your end client devices with static IP configurations as follows.

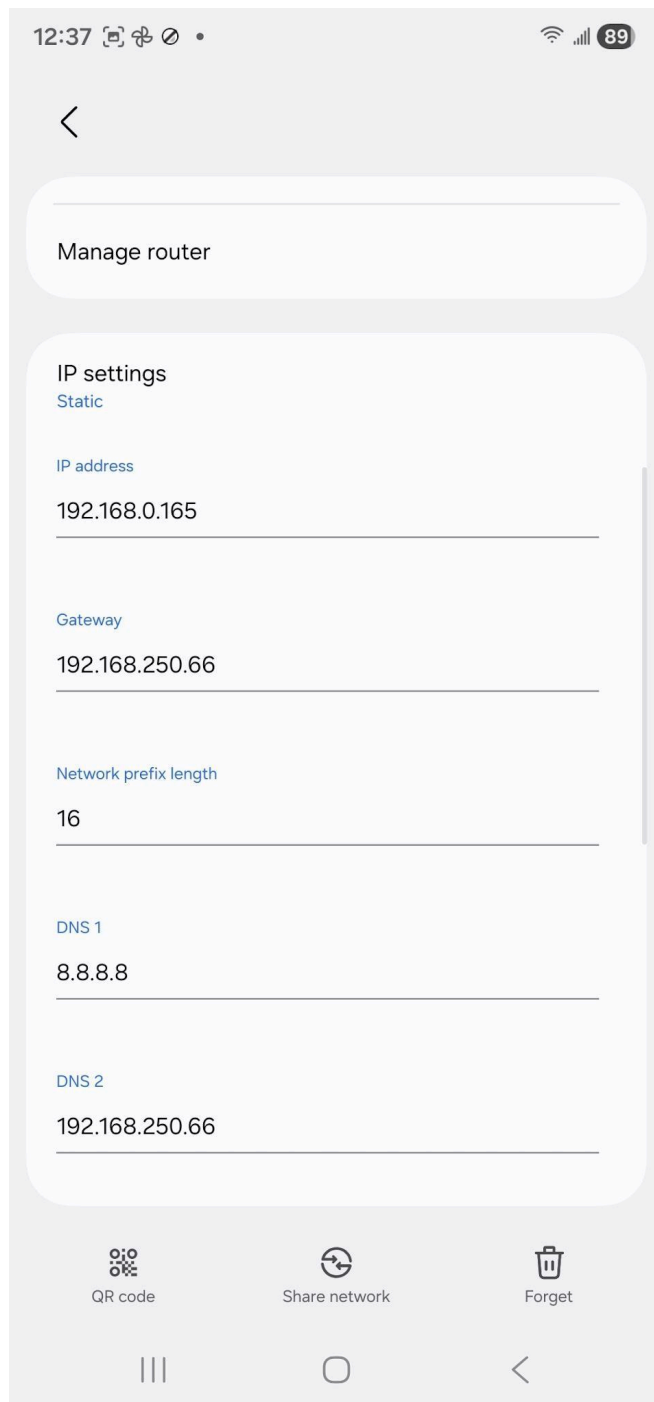
IPv4 address:	A unique number anywhere in the range 192.168.xx.xx
IPv4 Gateway	Set to the IP of the radio connected to the internet source
IPv4 netmask	255.255.0.0 (or equivalently, a network prefix length of 16)
DNS server 1	8.8.8.8
DNS server 2	Set to the IP of the radio connected to the internet source

Use case 3 - Hardwired StarLink Internet sharing (ethernet port as DHCP client) [Recommended]

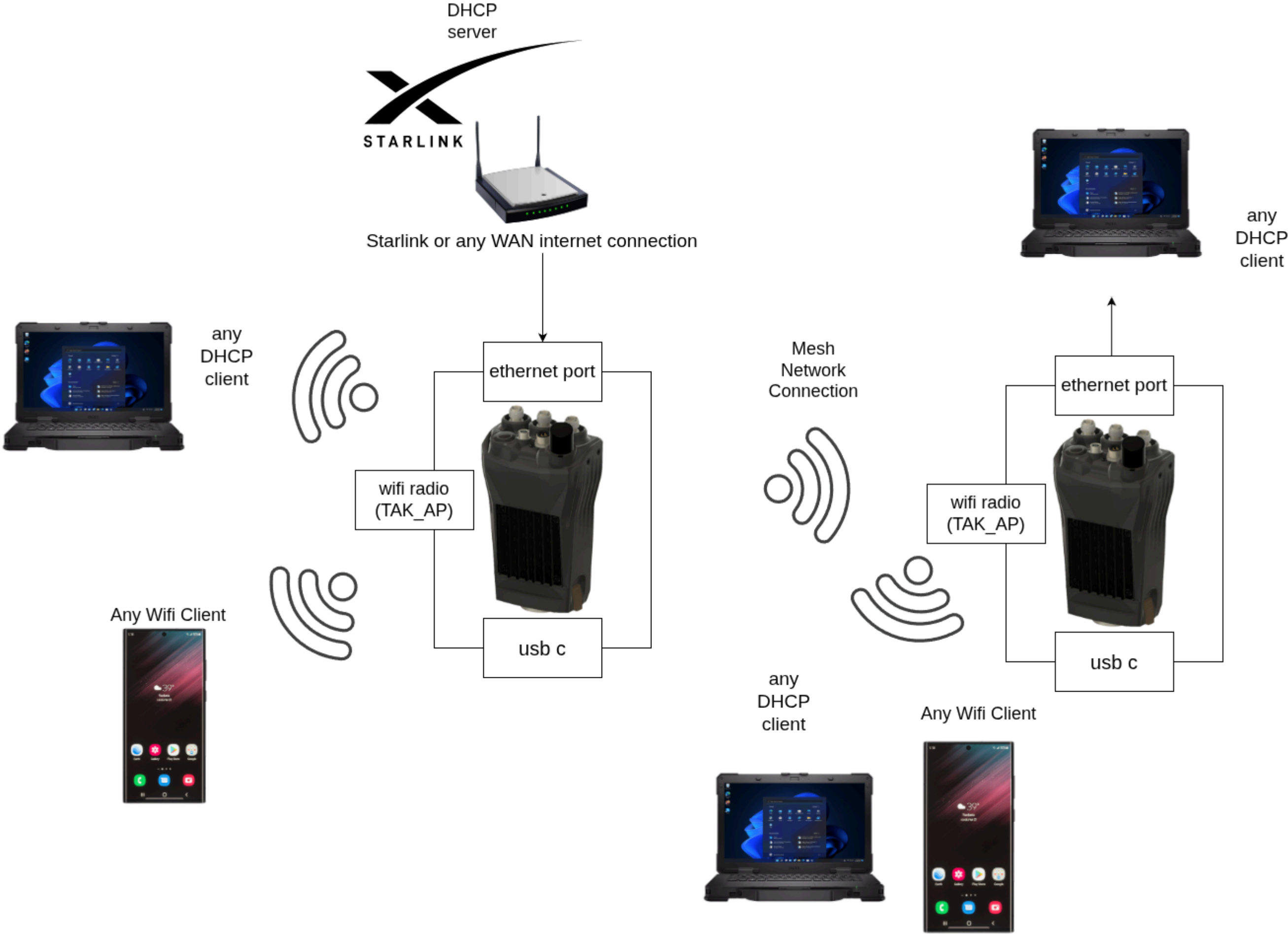
Important Note: All client devices that require network access outside of the mesh (AKA internet for phone, laptops, etc) connect must have their IP settings configure as Static with the following settings.

ipV4 address:	A unique number anywhere in the range 192.168.xx.xx
IpV4 Gateway	Set to the IP of the radio connected to the internet source
IpV4 netmask	255.255.0.0 (or equivalently, a network prefix length of 16)
DNS server 1	8.8.8.8
DNS server 2	Set to the IP of the radio connected to the internet source

Their Gateway IP address should be set to the IP address of the Mesh Unit that is providing internet NOT to the Wifi router to which the mesh unit is connected. You choose an IP address anywhere in the range [192.168.xx.xx](#) The screenshot below shows an example of a correct setup, assuming that the Gateway IP Mesh Unit's IP address is 192.168.250.66. You must use a netmask of 255.255.0.0 or equivalently, a network prefix length of 16.



Note: Make sure to enable bypass mode in the StarLink app before proceeding.



CRITICAL WARNING: The user **MUST** connect to the device via Wi-Fi (**TAK_AP**) before starting these steps. If you try to do this while plugged into the Ethernet port, you will cut off their own connection at Step 2 and be unable to finish the setup (locking yourself out of the router).

Step 1: Free the Ethernet Port

- 1. Navigate to **Network > Interfaces**.
- 2. Click the **Devices** tab (a small tab near the top of the page, next to "Interfaces").

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00

REFRESHING

Status

System

Services

Network

Wireless

Routing

DHCP and DNS

Diagnostics

SQM QoS

Firewall

Statistics

Log out

Interface

Devices

Global network options

Devices

Device	Type	MAC Address	MTU		
br-lan	Bridge device	00:D0:12:1E:FA:40	1500	Configure...	Unconfigure
erspan0	Network device	00:00:00:00:00:00	1450	Configure...	Unconfigure
eth0	Network device	00:D0:12:1E:FA:40	1500	Configure...	Unconfigure
wlan0	Network device	00:30:1A:4F:64:3C	1500	Configure...	Unconfigure
wlan1	Network device	02:30:1A:4F:64:3C	1500	Configure...	Unconfigure

Add device configuration...

Save & Apply Save Reset

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- 3. Find the row for **br-lan** and click **Configure** (or Edit).

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00 REFRESHING

Status

System

Services

Network

Wireless

Routing

DHCP and DNS

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Log out

Interfaces

Devices

Global network options

Devices

Device	Type	MAC Address	MTU		
 br-lan	Bridge device	00:D0:12:1E:FA:40	1500	Configure...	Unconfigure
 erspan0	Network device	00:00:00:00:00:00	1450	Configure...	Unconfigure
 eth0	Network device	00:D0:12:1E:FA:40	1500	Configure...	Unconfigure
 wlan0	Network device	00:30:1A:4F:64:3C	1500	Configure...	Unconfigure
 wlan1	Network device	02:30:1A:4F:64:3C	1500	Configure...	Unconfigure

Add device configuration...

Save & Apply

Save

Reset

4. In the "Bridge ports" list, **uncheck** `eth0`.

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00

Status
System
Services
Network
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Wireless
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DHCP and DNS
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Log out

Interfaces

Devices

Global network options

Devices

Device
br-lan
erspan0
eth0
wlan0
wlan1

Add device configuration

Bridge device: br-lan

General device options
Advanced device options
Bridge VLAN filtering

Device type: Bridge device
Device name: br-lan
Bridge ports:

- ☐ Ethernet Adapter: "erspan0"
- ☒ Ethernet Adapter: "eth0"
- ☐ -- custom --

Bring up empty bridge: ☐

Bring up the bridge interface even if no ports are attached

MTU: 1500
MAC address: 00:D0:12:1E:FA:40
TX queue length: 1000
Enable IPv6: automatic (enabled)
IPv6 MTU: 1500
DAD transmits: 1

Amount of Duplicate Address Detection probes to

Configure... Unconfigure
Configure... Unconfigure
Configure... Unconfigure
Configure... Unconfigure
Configure... Unconfigure

Save & Apply Save

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5. Click **Save**.

- Result: The bridge now only bridges Wi-Fi to Wi-Fi. *eth0* is now loose/free.

Step 2: Create the WAN Interface

1. Click the **Interfaces** tab to go back to the main view.
2. Click **"Add new interface..."**.

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00

REFRESHING UNSAVE

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Interfaces

lan

br-lan

Protocol: Static address
Uptime: 1h 5m 17s
MAC: 00:D0:12:1E:FA:40
RX: 1.53 MB (23776 Pkts.)
TX: 3.89 MB (22272 Pkts.)
IPv4: 192.168.51.1/24
IPv6: fd10:6d12:fb4::1/60

Restart

Stop

Edit

Delete

Add new interface...

Save & Apply

Save

3. **Name:** wan
4. **Protocol:** DHCP client.
5. **Device:** Select eth0 (which is now available).

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00

REFRESHING UNSAVED CHANGES

Status
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Interfaces
Devices
Global network options

Interfaces

lan
br-lan

Add new interface...

Add new interface...

Name: wan
Protocol: DHCP client
Device: eth0

Cancel Create interface

Stop Edit Delete

Save & Apply Save

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6. Click **Create Interface**.

Step 3: Firewall Settings

1. On the new **wan** settings page, go to the **Firewall Settings** tab.
2. Assign it to the **WAN** zone (Red).

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00

REFRESHING UNSAVED

Status
System
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Diagnostics
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Interfaces Devices Global network options

Interfaces

lan
br-lan

wan
eth0

Add new interface...

Interfaces » wan

General Settings Advanced Settings Firewall Settings DHCP Server

Create / Assign firewall-zone

wan wan: 

Choose the firewall zone you want to assign to this interface. Select *unspecified* to remove the interface from the associated zone or fill out the *custom* field to define a new zone and attach the interface to it.

Dismiss Save

Stop Edit Del

Stop Edit Del

Save & Apply Save

Powered by LuCI openwrt-24.10 branch (24.079.46338~374af8b)

3. Click **Save & Apply**.

OpenWrt | MorosX_WRT v1.0 r0+24919-f374f957c5 | Load: 0.00 0.00 0.00

REFRESHINGUNSAVED CHANGES: 4

Status

System

Services

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Interfacedevices

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SQM QoS

Firewall

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InterfacesDevicesGlobal network options

Interfaces

lan

br-lan

Protocol: Static address

Uptime: 1h 7m 47s

MAC: 00:D0:12:1E:FA:40

RX: 1.91 MB (30462 Pkts.)

TX: 4.73 MB (28145 Pkts.)

IPv4: 192.168.51.1/24

IPv6: fd10:6d12:fb4::1/60

Restart

Stop

Edit

Delete

wan

eth0

Protocol: DHCP client

Interface has 3 pending changes

Restart

Stop

Edit

Delete

Add new interface...

Save & ApplySaveReset

Powered by LuCI openwrt-24.10 branch (24.079.46338~374af8b)

You will now have internet access across the mesh network. Be sure to configure your end client devices with static ip configurations as follows.

ipV4 address:	A unique number anywhere in the range 192.168.xx.xx
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DNS server 1	8.8.8.8
DNS server 2	Set to the IP of the radio connected to the internet source

Drone Interfacing

Step 0 - On the remote phone install these packages:

ATAK-Files

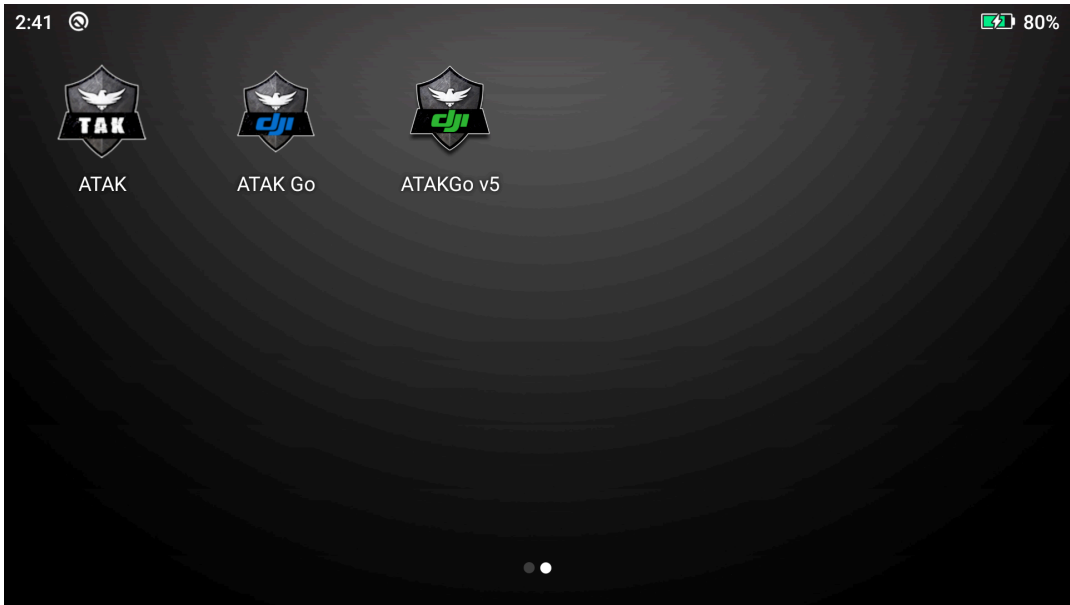
ATAK CIV 5.7.0.3

ATAKGO - 4.18.0.190

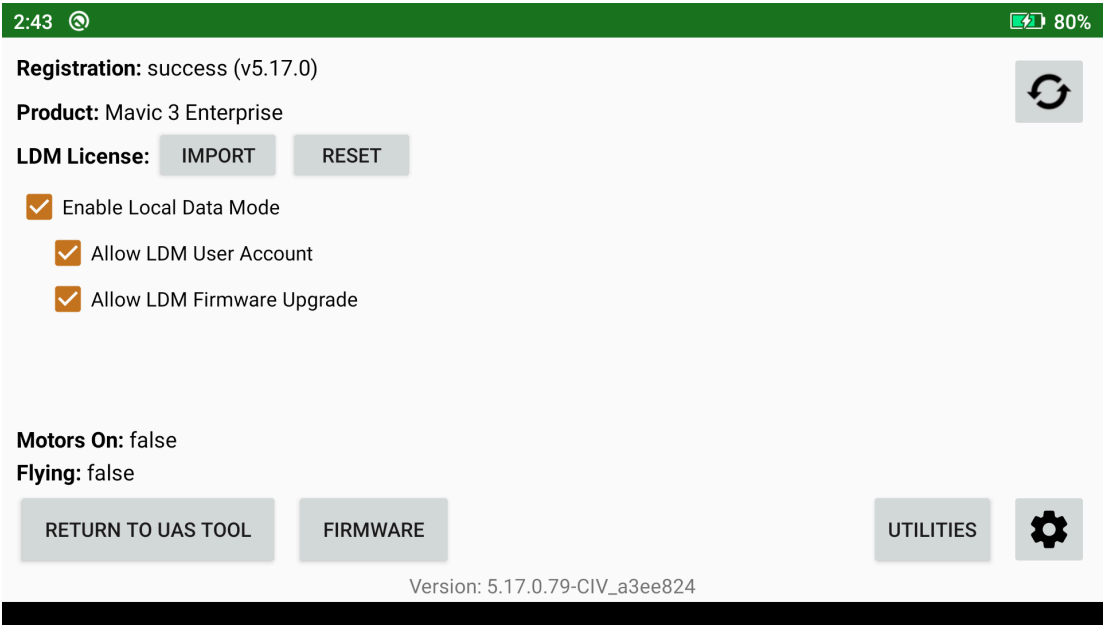
ATAK UAS tool 12.0.0 dc94f2e8

ATAKGo V5 5.17.0.79

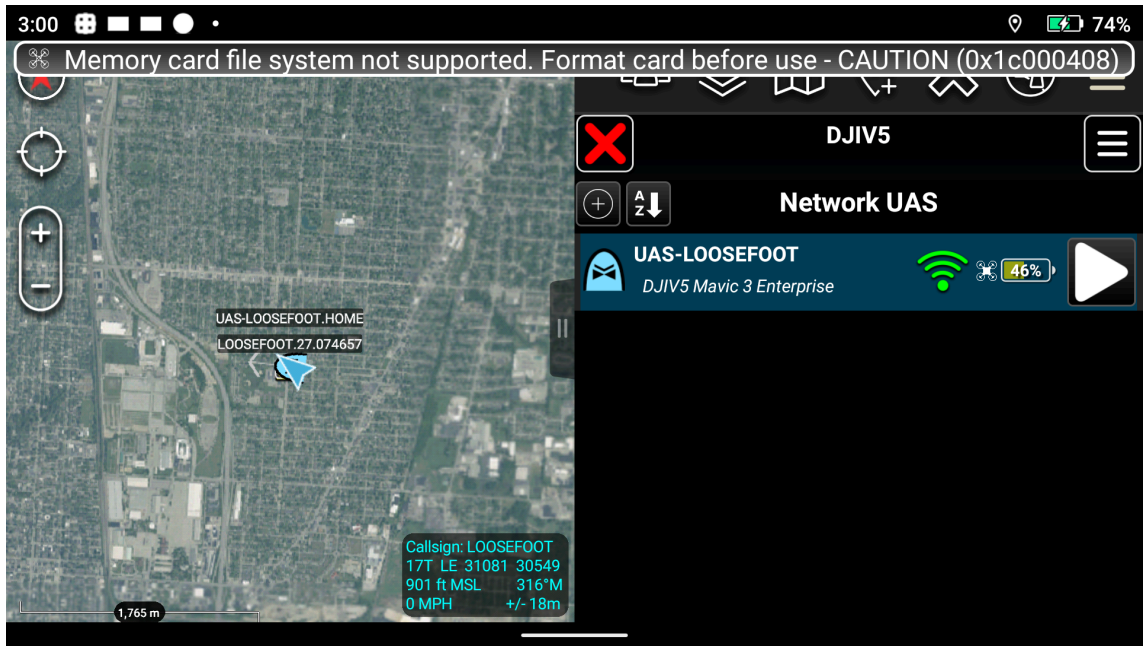
Step 1 - On the controller open ATAK Go v5



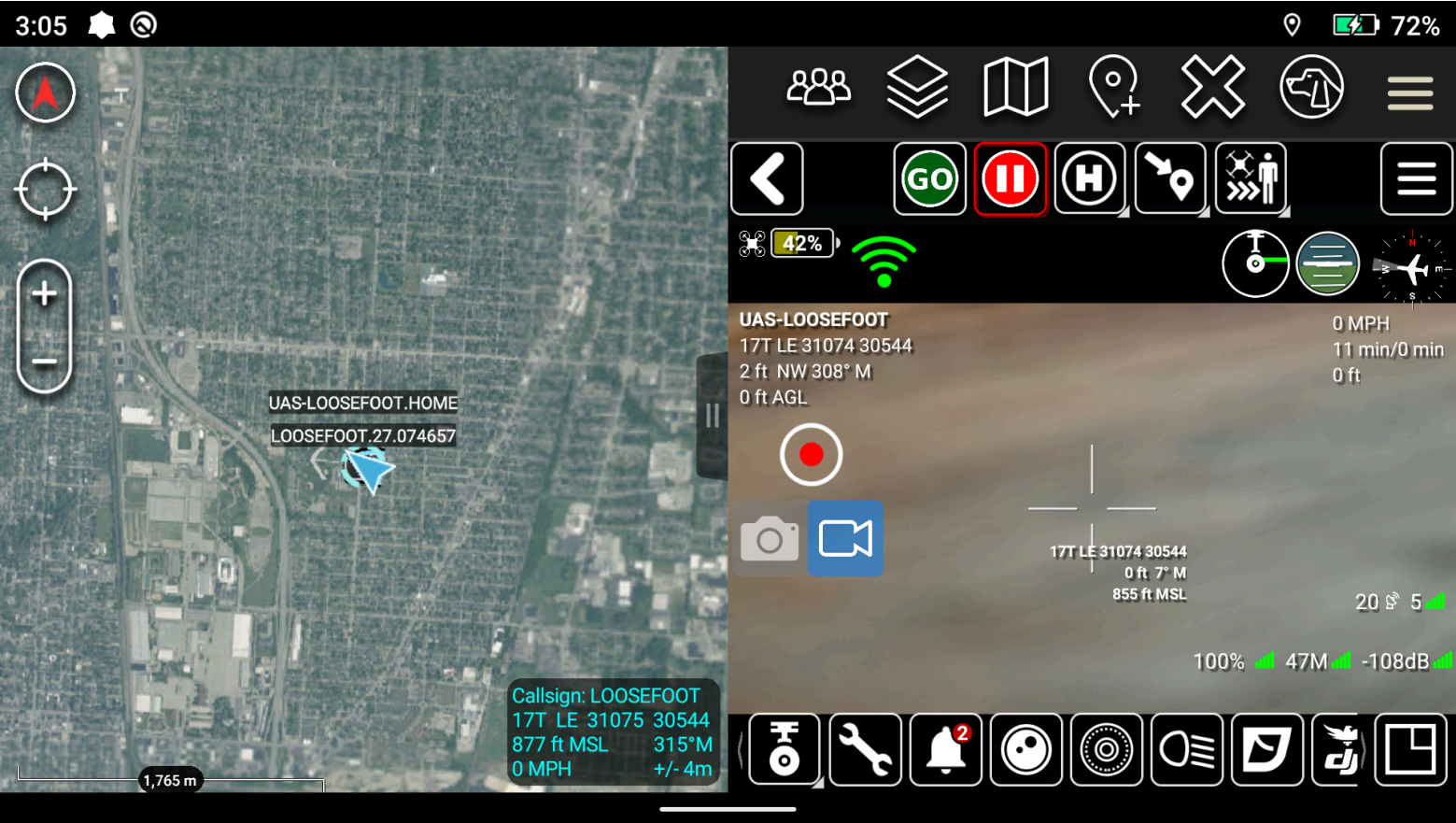
Step 2 - Ensure that registration = success



Step 3 - Open UAS tool and select the drone

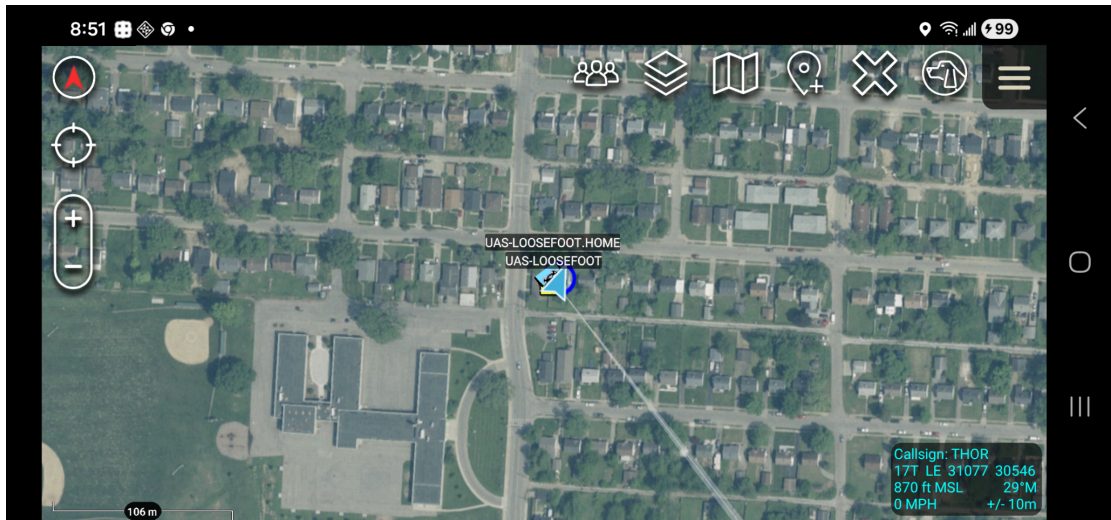


Step 4 - Press play you will see the live feed

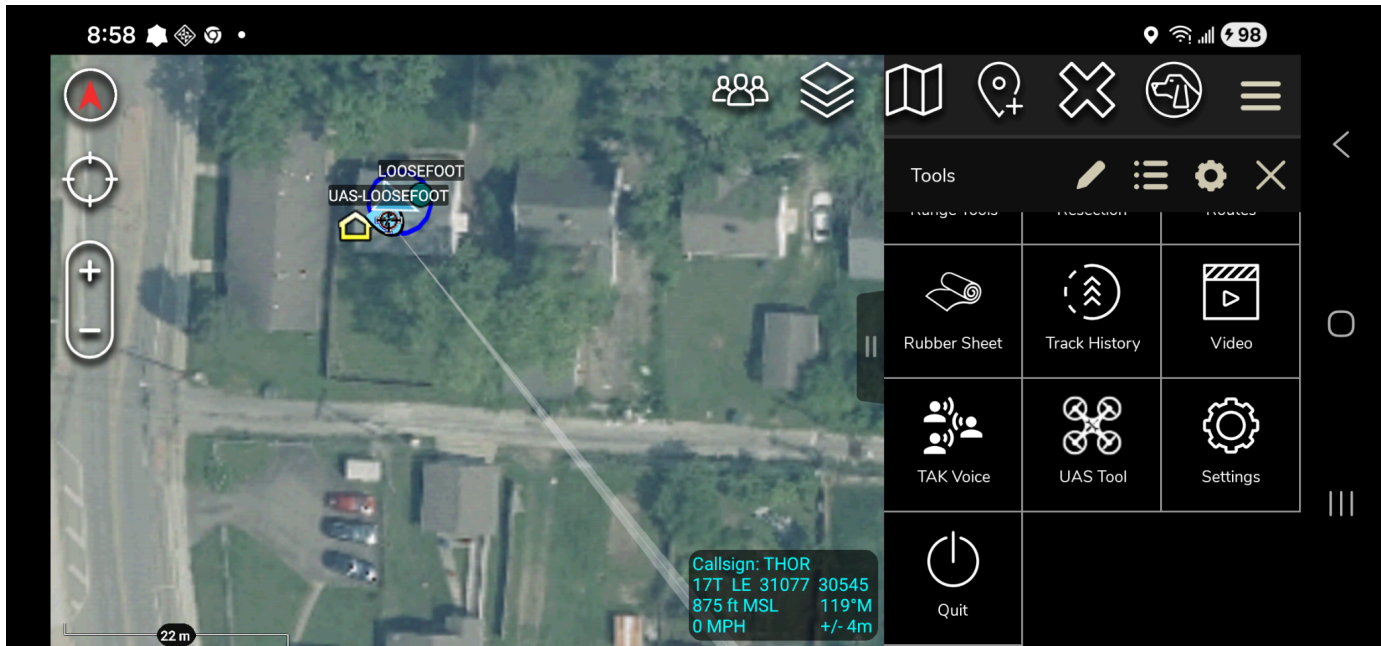


The drone is now broadcasting its video over the mesh network

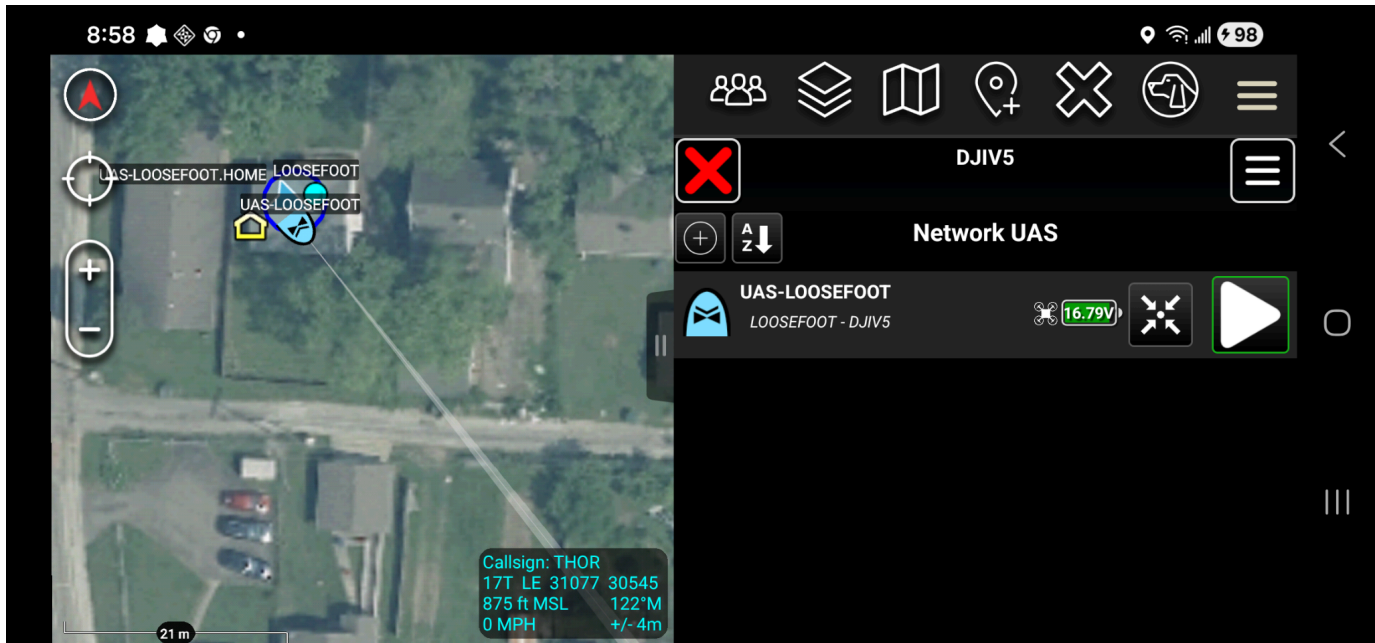
Step 5 - Now on the remote phone (connected to the mesh network via HaLow direct ethernet OR wifi TAK_AP), open ATAK. You will see UAS-Loosefoot



Step 6 - ON the remote phone Open ATAK UAS tool

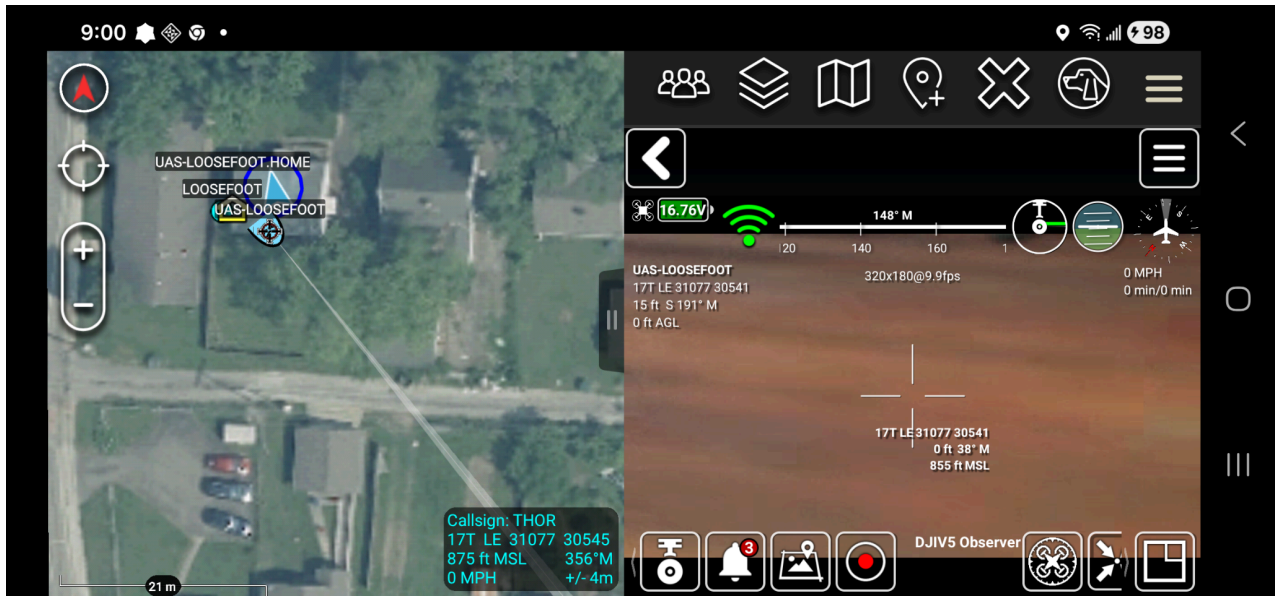


Step 7 - Press play on UAS-Loosefoot

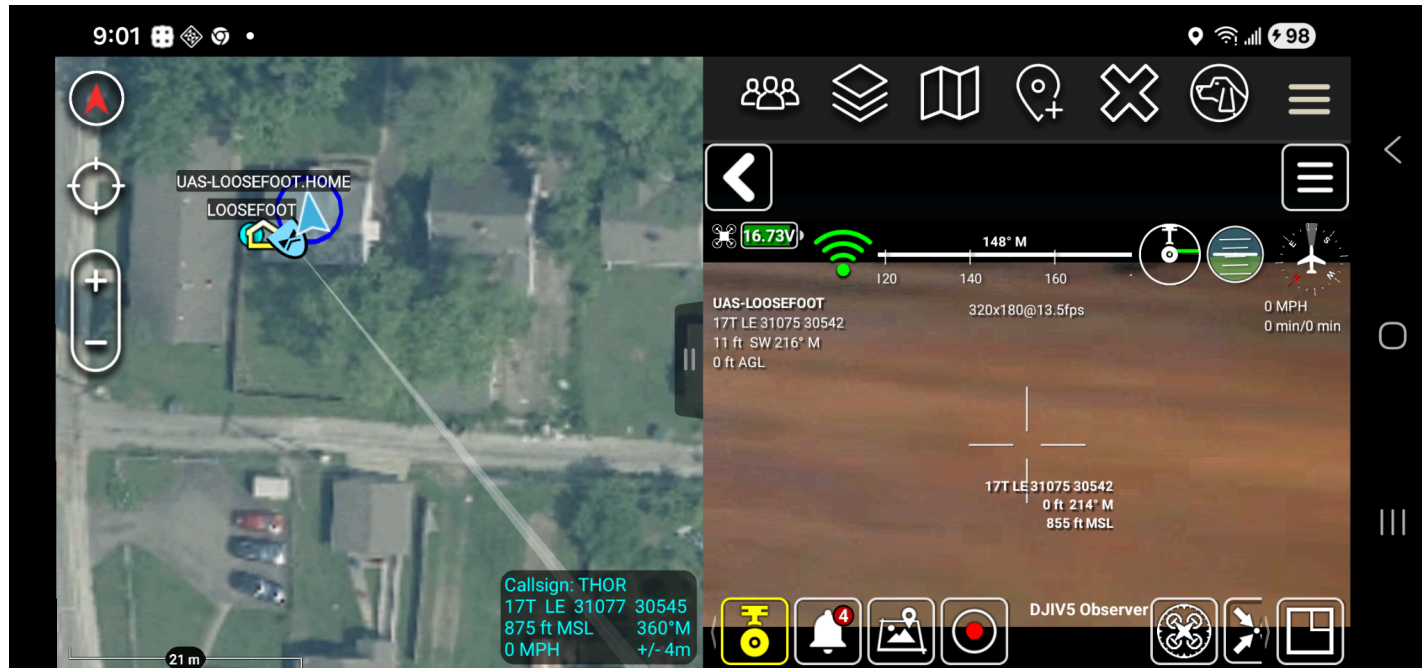


You will now see the live video feed from the controller over the mesh network

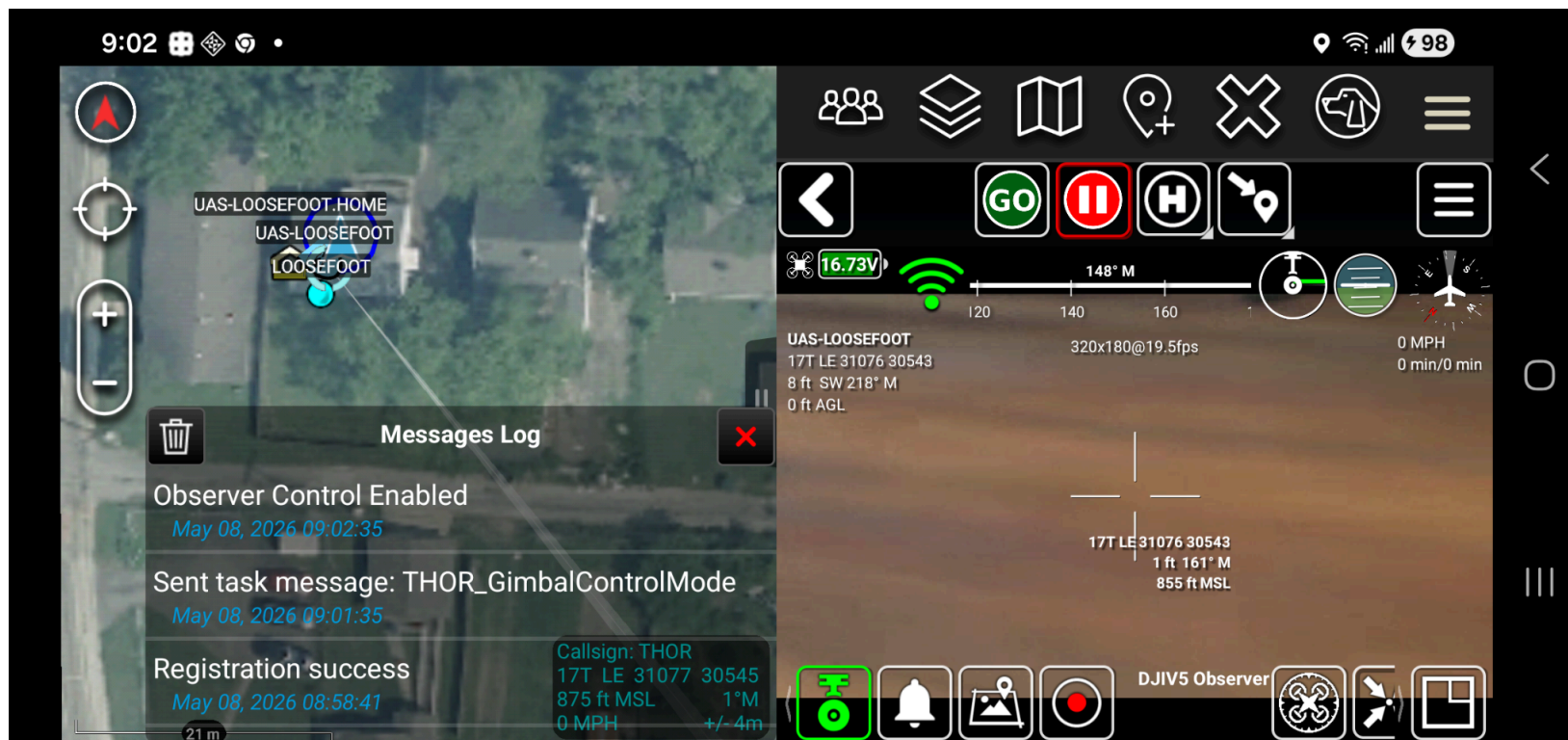
[Trey: This demonstrates data flow from **drone** to **remote phone** over mesh]



Step 8 - Tap the gimbal icon on the bottom left (yellow in the screenshot below)



Step 9 - On the CONTROLLER there will be a message “New Task Received” The controller operator must click “Run now”. Back on the remote phone, you will see a pop up “Observer control Enabled”



Step 10 - Tap the video feed on the remote phone. The gimbal will move down 90 degrees (or up if you tap again)

[Trey: This demonstrates data flow from remote phone to drone over mesh]

Note: Screenshot below is unhelpful because the screenshot was taken in doors. Better results can be seen during flight.

