

Team Awareness  
Android Tactical Assault Kit (ATAK™)  
Licensing for Tech Transfer & Tech  
Transition



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# Goals



- **Push AFRL research (ATAK<sup>TM</sup>) out to as many US companies/people as find it useful**
- **Make ATAK<sup>TM</sup> THE geo-spatial “Team” Android framework**
- **Allow the Government to benefit from that use**
  - **DoD, Federal Government**
  - **State, Local Governments**
  - **Individuals, companies**
- **Allow international Partners to benefit from that use**



# What is ATAK™ ?



Civilian capabilities,  
Already widely

- An Android (possibly later on iOS and Windows as well) infrastructure/application that allows:

- [Online](#) and [offline mapping](#) (most standard formats), with a fast rendering engine
- Web Browser, JavaScript, API
- [Collaborative mapping](#), including points, [drawings](#), locations of interest, kml, maps
- [Location marking](#), [sharing](#), [history](#),
- [Chat](#), [file sharing](#), [photo sharing](#), [video sharing](#), [streaming](#)
- [Navigation](#) ([walking/hiking](#), [driving](#), also useful for some [flying](#))
- [Altitude profiling](#) between locations, routes w/ [DTED](#), [SRTM](#)
- Cell phone, WiFi, civilian radio controls, interface
- [Skydiving tool](#) ([w/winds](#) for [better prediction](#))-but our guys still wear (2) altimeters
- [Hunting](#), [Fishing](#), [Ornithology](#), [Wildlife Site Survey](#)\*

Military-unique  
Capabilities

- Site Survey Tool \*
- Targeting
- Mensuration (precise geo-location)
- Runway Survey Tools
- Military radio controls, messages, interface

**ATAK is smartphone Geo-spatial infrastructure  
How you extend it is the real application**



# Where is ATAK™ Now



- **Version 2.0 has Very good general usability**
- **ATAK™ is run as a Government “Open Source” project**
  - **Any Government organization can get the source code**
    - **Collaborate to add your work to ATAK™**
    - **Fork to build your own project (discouraged)**
  - **We prefer that you have your contractor work under “Unlimited Rights”, so everyone can use the improvements you make (No Checkins w/o Unlimited Rights)**
  - **We will incorporate the improvements we like to benefit all our Government collaborators**



# QuickNav



The screenshot displays the QuickNav application interface. At the top, a dark navigation bar contains various icons. A vertical list of labels is overlaid on the left side of the screen, with blue arrows pointing to specific icons in the navigation bar:

- Zoom In
- Zoom Out
- Lock map on me
- Range/bearing, ruler
- Route Manager
- Video window
- ChatWindow
- Point Dropper
- Layer control
- Maps & Favorites
- Menu

The main area shows a satellite map with a red line indicating a path. A data panel on the right displays the following information:

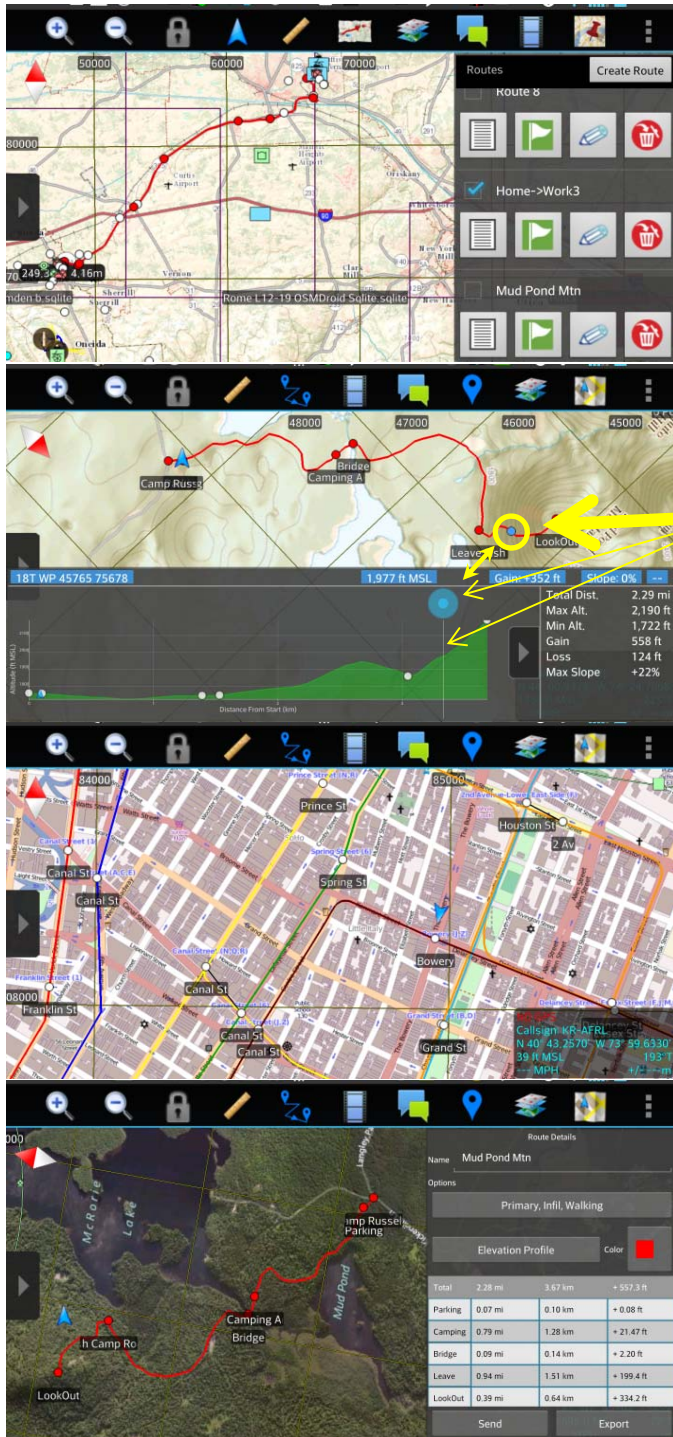
- Auto Zoom On
- Hdg: 354°
- Brg: 271°
- RB: 277°
- Distance: 743 m
- Ground speed: 48.60 km/h

Below the data panel is a compass with a red arrow pointing North and a blue arrow pointing East.

- Not logged in to this server (Server Down)
  - Logged in to this server
  - Blue notification received
  - Red notification received
- **Navigation Tool:**
    - Range/bearing, heading, speed, compass



# KML, Routes & Elevation Profiles

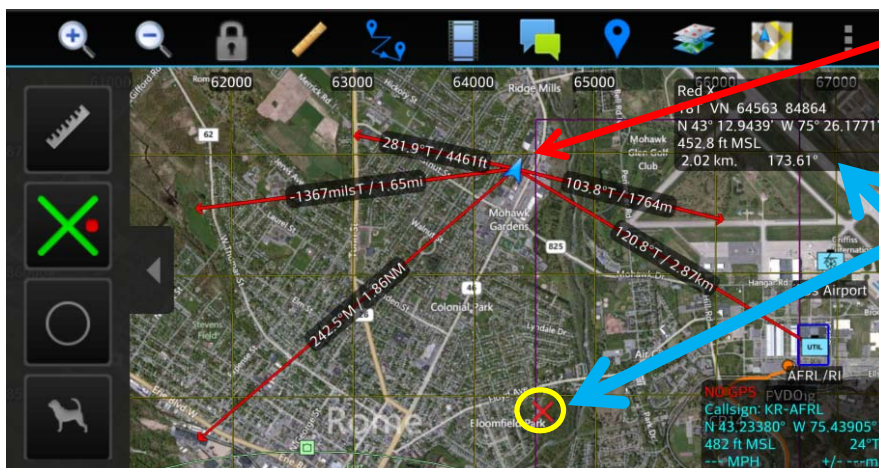
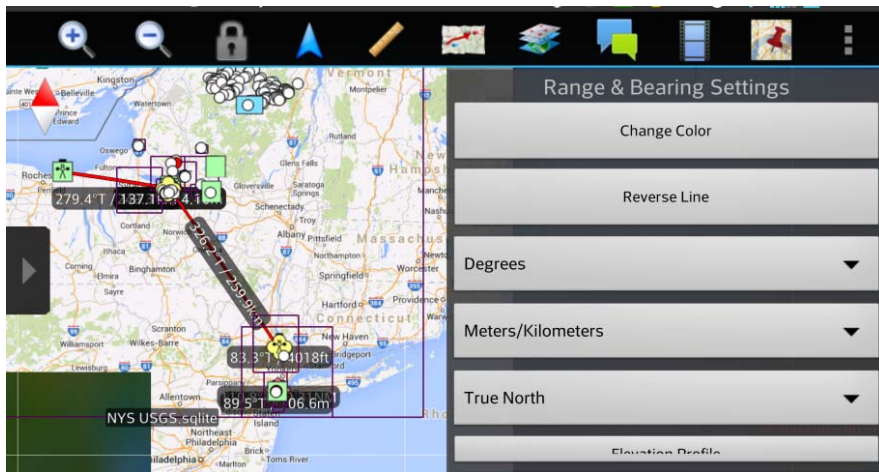
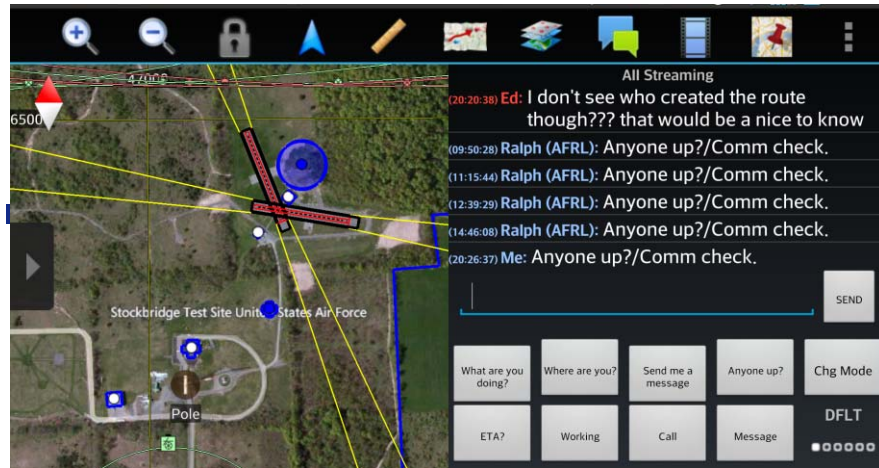


- Import routes from KML or manually input (easier than you think!)
- Show altitude (MSL) along routes or bearing lines
  - Altitude from DTED, STRM
- Check elevation by sliding along the route
- Chose KML, routes displayed
- Auto-zoom map to checkpoint
- Track-up or North Up (by speed or compass)
- Review/export checkpoints



# Chat, Drawing, Range/Bearing

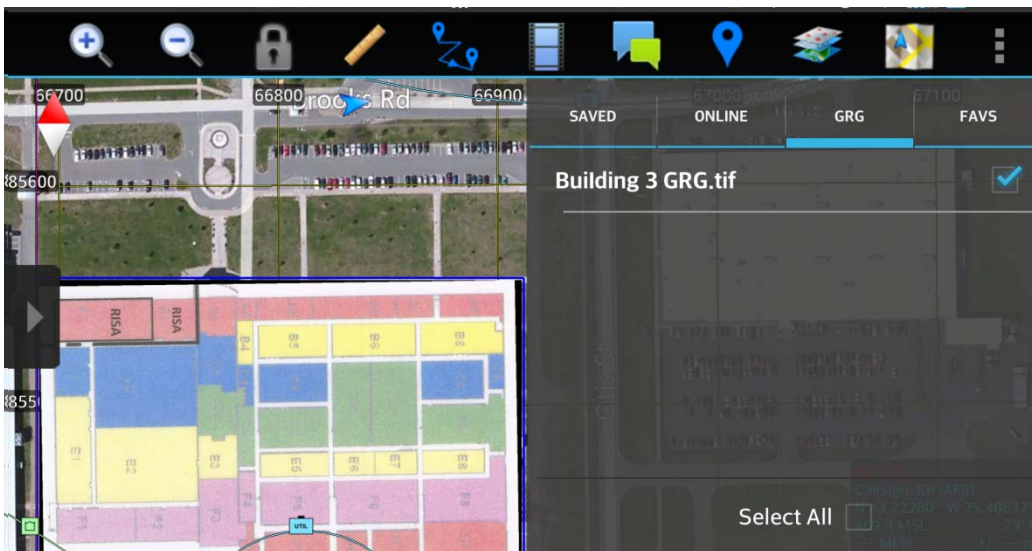
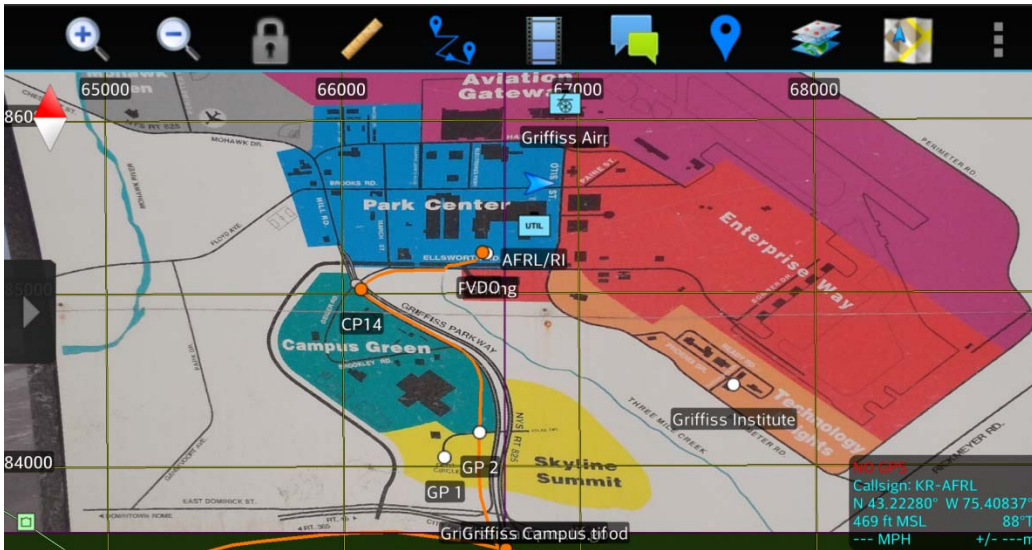
- Common drawing tools-circle, rectangle, freeform, colors, transparency
- Read common FalconView formats, export to KML
- Chat: all, custom rooms, one on one; panels of custom quick-text for quick typing through a secure, CoT Server
- Measure distances to multiple locations simultaneously (including net-objects), in whatever units are appropriate (mi/ft, km/m, NM, mils/degrees, true/magnetic north)
- One-tap movable “x” to get quick distances (net-enabled)
- Optional MGRS lines







# GRGs & Improvised Maps



- Supports Standard GRGs (Gridded Reference Graphics) – Custom imagery with annotation, either as overlays or as layers
- These maps were taken as camera photos, converted w/ GeoRect\*, and imported into ATAK™ (5-10 min each)

\*GeoRect is an OpenSource Component of FalconView





# Adding Map Sources

- Its easy to add map sources to both ATAK and MOBAC
- You need a few lines of XML, that looks a lot like this:

```
<customMapSource>
<name>Chartbundle US Area Charts</name>
  <minZoom>4</minZoom>
  <maxZoom>13</maxZoom>
  tileType>png</tileType>
  <tileUpdate>None</tileUpdate>
  <url>http://wms.chartbundle.com/tms/v1.0/enra/{z}/{x}/{y}.png?type=google</url>
  <backgroundColor>#000000</backgroundColor>
</customMapSource>
```

The Maximum zoom of 19 is about 1/2 meter resolution  
(Your imagery source may not support it)

\*\*\*

- For Secure WMS servers, use the address of your server in place of the line with\*\*\*
- You can add other public sources by replacing the \*\*\* line above with the correct address
  - An excellent list of other WMS Server sources is available [here](http://www.neongeo.com/wiki/doku.php?id=map_servers).
    - [http://www.neongeo.com/wiki/doku.php?id=map\\_servers](http://www.neongeo.com/wiki/doku.php?id=map_servers)
  - XML above is the same format as used in both MOBAC, and ATAK
  - For ATAK: Drop the xml in your phone directory atak/mobac/mapsources
  - For MOBAC: Drop the xml on your pc in MOBAC/mapsources

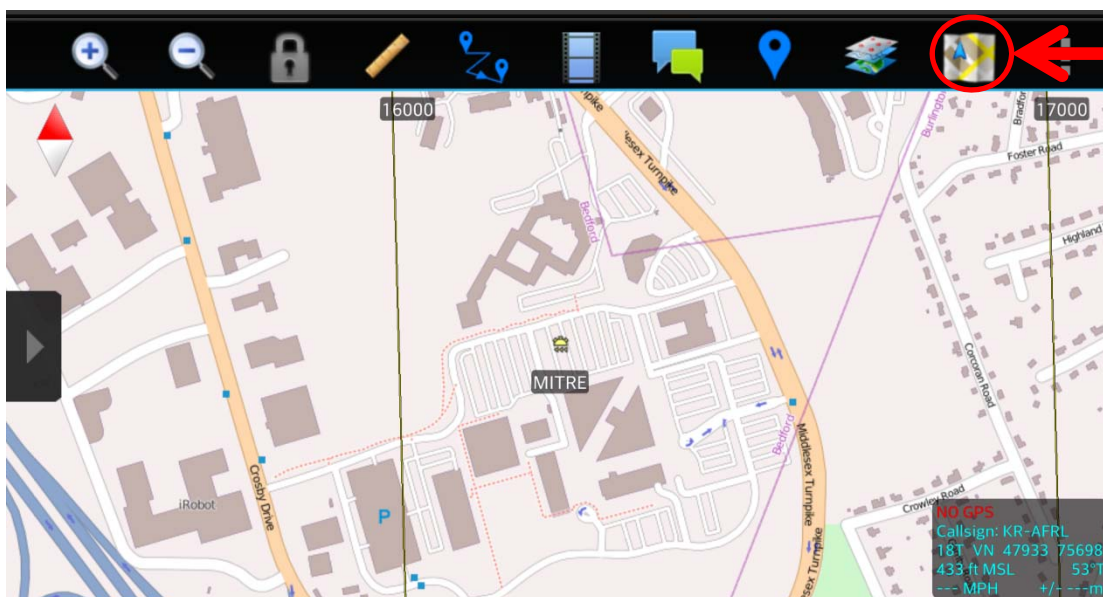
\*\*\* Change this line for other MapSources. There are a bunch of example XML files posted on the [ATAK web site](#).



# Making Maps Available Offline



- Select the “Maps & Favorites” icon
- Choose “Online”
- Select a square area (Upper Left first)
- Choose the resolutions you want to download
  - Check one box
  - Adjust slider for resolutions
- Download the Tiles from the WMS Server via WiFi, Cell (in the background)
- Stored in Open StreetMaps SQLite Format
- Becomes another layer in your “Saved” (offline) maps
- Additional map sources are easy to add

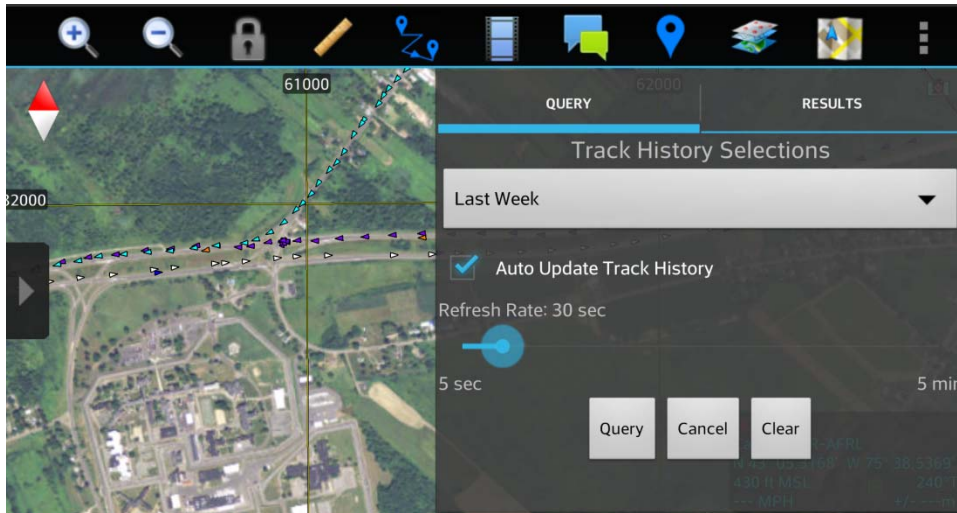


- Click the “Maps & Favorites” Icon to download new maps
- Most\* DoD imagery servers can be made available in this format
- Simple to add your map Source
- MOBAC is an excellent open source application to allow desktop creation of imagery

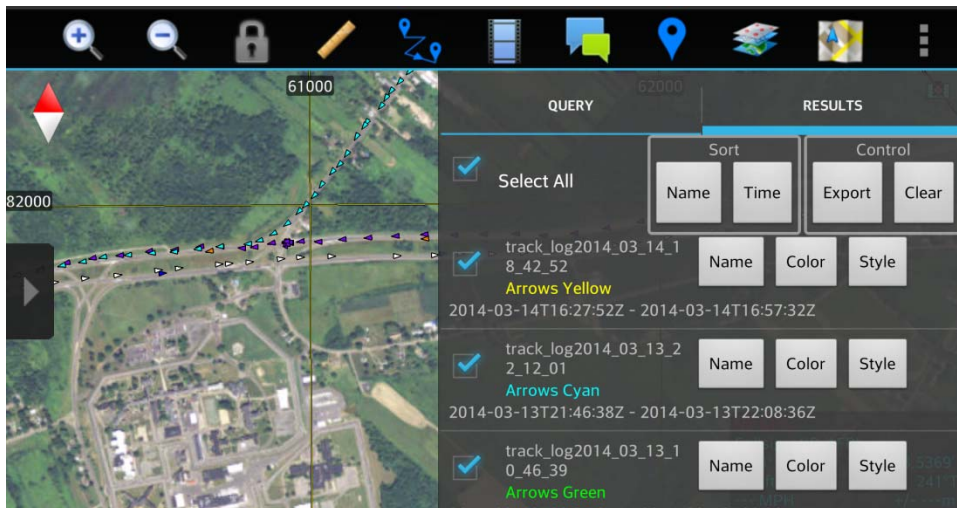
\*By “most” I mean all the ones we use. Any WMS server will work



# Checking Your Track History



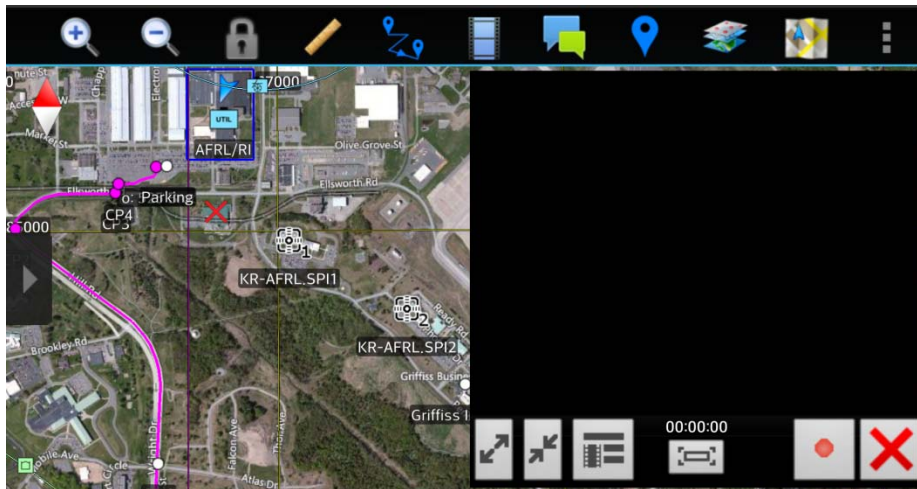
- Able to search track history over time & selectively plot it
- Able to add tracks from other network participants (people and tracks) as well.







# Video



- **ATAK currently supports many DoD video sources**
- **For licensing reasons, we won't be adding our video libraries to the Open Source Version**
- **Working to support peer-to-peer VP8 (Not in 2.0)**



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**ATAK is smartphone Geo-spatial infrastructure  
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\*Obvious Dual use. The only sensitive thing is the sorts of data we collect.

\*\*Unless the radio companies tell us we can release them



# Problem



- **ATAK™ is extremely useful, but bureaucracies being what they are, we can't propagate ATAK the way we think it should be done.**
- **We Need help from industry**
- **BUT, we want to see that industry doesn't charge monopoly pricing for something The Government (aka "the people") already "own"**





# Why is ATAK Transfer Important Now?



- Transitioning now, at what is still the leading edge of the SmartPhone revolution will allow ATAK to become the leading integrated, collaborative, multi-user smartphone application for several years to come
- **MetCalfe's Law**: “The value of a network is proportional to the square of the number of connected users”

**More users -> Dramatically increased value –  
For ALL Users**

**To Maximize benefit to the Government,  
we need to many users**



# ATAK<sup>TM</sup> Tech Transfer Goals



- **Push “ATAK<sup>TM</sup>” into every horizontal market that might benefit, driving competition, reducing end-user cost**
- **Allow private companies to modify and sell service, support, plugins & subscriptions custom to various DoD, Government, civilian, foreign markets**
  - Licensees give back modifications to base ATAK<sup>TM</sup>
  - Licensees do not give back ATAK<sup>TM</sup> Plugins (separate Apps)
- **Allow “The Government” to benefit from:**
  - Lower cost to deploy pre-developed solution
  - Lower (& shared) development costs for new features
  - Higher awareness and training across all levels
  - Common baseline with loose affiliations
  - Other people’s ideas on improving collaborative mapping
- **Allow the public to benefit from these same advances**

“The Government” is often bifurcated in practice.  
The goal here is to reach those distant “Governments”



# Why Can't the Contractor Do This?



- **There is no one “ATAK<sup>TM</sup> Contractor”**
  - AFRL has acted as the integrator, with help from numerous contractors; and no one contractor owns ATAK<sup>TM</sup>
- **The Government:**
  - Has Unlimited Rights\* on virtually all of ATAK<sup>TM</sup>
  - Has a very broad License to distribute the video codecs as part of ATAK<sup>TM</sup>
  - All Contracting done with Unlimited Rights
  - All collaborators given access only with agreement to provide Unlimited Rights

**The Government can easily license/release ATAK  
No contractor has the right to do so**

\* DFARS [SUBPART 227.72](#): "Unlimited rights" means the right to use, modify, reproduce, release, perform, display, or disclose this product in whole or in part, in any manner and for any purpose whatsoever, and to have or authorize others to do so. Distribution A: Approved for Public Release





# Notional\* Licensing Terms (All Versions)



- **Government Gives:**
  - **All\*\* Source code, executables to ATAK modifications**
    - **but not completely separate plugins developed at private expense**
  - **The right to use the source code any way you please**
- **Government Gets**
  - **Any changes made to the source code (Quarterly)**
  - **A list of who you re-licensed to**
  - **A note of acknowledgement in “About”**

Working to make the license almost “Click-through”

\*This approach hasn't been signed off by the Government Lawyers, and this is not a promise to do anything

\*\*There are a couple of exceptions to this. The major one is the Video Codecs, which can only be distributed as part of ATAK Release



# Counter-Examples



- **The DoD had (at least) six windows-based targeting applications, each separately developed and maintained**
  - **They all did pretty much the same thing**
  - **There was agreement that “the Government” should strive for commonality**
  - **There was no agreement on how to achieve commonality;**
    - **Each group was biased to prefer their own app**
    - **Most groups refused to share source code**



# Licensed Versions of ATAK & Support



- **ATAK<sub>m</sub> – Military Version, as developed**
- **ATAK<sub>g</sub>\* – Removed military components, but retains Government-licensed video components**
- **ATAK<sub>c</sub> – ATAK<sub>g</sub> minus the military components, no licensed video, with some civilian replacements added (chat, video) – Open Source as well**
- **Marti, the information routing server (Might not be Open Sourced)**

\*Ideal for FEMA, DHA, Forest Service, etc.





# Example Horizontal Markets



Market	Example Users	Description
International Defense	<a href="#">Tomanian</a> SOF, <a href="#">Freedonian</a> Army, <a href="#">Grand Fenwick</a> Civil Defense	Other nations that need to have a common operating picture with US Forces; Licensing Company would modify, support, handle export licenses
Domestic Low Infrastructure	<a href="#">Berzerkistan</a> Forest Service, FEMA, DHS	Where common operating picture is important, but no fixed infrastructure (forest fires, hurricanes)
Paramilitary coordination	<a href="#">Latvernian</a> SWAT Teams, <a href="#">Soylent</a> Security, <a href="#">OsCorp</a>	Solid Situational Awareness for snap missions, including cross-agency coordination
Law Enforcement, Municipal coordination	<a href="#">Mayberry</a> Sheriffs, <a href="#">Springfield</a> Police, <a href="#">McKinley High School</a> , <a href="#">Faber College</a> Staff	Inter-, intra- municipality coordination, for unforeseen emergencies (were are my Volunteer Firemen? Who's on scene at the School Shooting?)
Anti-poaching coordination	<a href="#">Vulgarian</a> Anti-Poaching Foundation	Allowing remote users to coordinate with minimal infrastructure on pretty much anything
Insurance Adjusters	<a href="#">YoyoDyne</a> Insurance, <a href="#">Stark Industries</a>	Organized collection of geographically understandable data, especially in large disasters
Backpacking, Hunting	Boy Scouts of <a href="#">Elbonia</a>	Local, Occasional group-level coordination & action
Field Research record	<a href="#">Miskatonic University</a> Department of Zoology	Recording and coordinating where/when specimens of interest are observed, Intermittently networked
Friends & Family Coordination	<b>You &amp; Me</b>	Where are your friends, kids? Where are they going, where should they go & what do they see?



# ATAK<sup>TM</sup> Licensee Benefits



- **Ability to build on ATAK<sup>TM</sup> in any way you want**
- **Build custom Plugins – to service your customers**
  - **Writers do not share Plugin rights with the Government**
- **Integrate Licensee hardware with ATAK<sup>TM</sup> ;**
  - **Makes the hardware (radios, peripherals) more valuable**
- **Modify ATAK<sup>TM</sup> for specific career/agency/industry workflows**
- **Sell service subscriptions to companies/end users**
- **Provides increased incentive for “Government” and international adoption of ATAK<sup>TM</sup>**



# Government Benefits



- **Makes ATAK™ technologies much more widely available, especially to the Government**
- **Relieves need for the Government (AFRL) to directly negotiate, distribute, maintain multiple versions**
- **Provides seamless interoperability between international licensees, US Government users, possibly civilian users**
- **Provides best ideas – Implemented – Back to the Government, and possibly all users (under our control)**
- **“The Government” pays for support, customization, not multiple infrastructures (Less paying to reinvent the wheel)**



# Squeezing & Supporting the Horizontal Markets



- **Provides a license to any responsible company**
  - **Competition at all levels, markets that can bear one**
  - **Open Sourcing provides competition at “Free”**
- **Companies compete to provide support, customization, not common base**
- **Improvements consolidated by The Government (us), provide improvements back to licensees**
- **Licensees provide them back to all their customers (“The Government”)**

**Provides a version of ATAK™ at all price-  
support-points (Including “Free”)**



# What About When AFRL Gets out of This Business?



- **AFRL WILL get out of this business, and probably “soon”**
- **If there’s no one to accept the code, everyone is on their own, and “The Government” is still much better off as a result**
- **As part of our transition plan, I expect that there will be a DoD Office willing to accept those changes, and provide them back to the community in a Consolidated manner**
  - **No. I can’t tell you who that will be in two or three years right now.**





# Supporting International Cooperation



- SOCOM's [Number two Priority](#)\*:
  - “Expand the global SOF Partnership” ([Speech](#), @1:20)
  - Interoperability is key to this
- Allows companies to build on military version for our close allies
- Allows a paramilitary version for others
- SOCOM envisions a “globally postured Joint Force... that quickly combine[s] capabilities with itself and mission partners across domains, echelons, geographic boundaries, and organizational affiliations.”
  - Adm McRaven Posture statement to Congress, March 5, 2013
- Supporting Companies are responsible for ITAR Issues (which are a big distraction for AFRL)

\*<http://www.socom.mil/pages/mission.aspx>



## Questions (to Us) (1 of 2)



- **“But if we don’t charge for it, it has no value”**
  - **True.**
  - **Except for Mozilla, Linux, Apache, Android, Wordpress**
  - **Except for Apple, Facebook, Google, eBay, Yahoo!, Twitter**
  - **Except for Baidu, TaoBao, Sina, WeiBo, xHamster**
  - **Except for Amazon, Rackspace, Carpathia, DreamHost**
  - **Except for 1/2 of all the world’s web servers**
  - **Except for 1/2 of all the world’s web browsers**

**Open Sourcing infrastructure  
propels innovation**



# Questions (to us)(2 of 2)



- People, companies and nations may use  $ATAK_c^{TM}$  in ways we don't approve!
  - They will.
  - Just Like every other technology.
  - Just like web blogs, web browsers, web servers...
  - However, the benefits to “The Government” outweigh this
- Both licensing and open sourcing will encourage fragmentation!
  - This is the price of propagation
  - If we continue to innovate and collaborate, we will be relevant. If not, another will dominate.
- $ATAK_c^{TM}$  is advanced. If we open source it, the [Snackistanis](#) will get it!
  - They will.
  - Just Like every other technology.
  - However, we aren't handing out the military-specific components
  - However, the benefits to “The Government” outweigh this
  - $ATAK_c^{TM}$  Doesn't do anything not already available
  - Marti doesn't do anything not already available
- $ATAK_{m,g,c}^{TM}$  competes with industry!
  - Yes, to some extent (at all price points!). However, that's an effect, not a purpose. The purpose is to increase capabilities and lower costs for all of “The Government”, and its affiliates.



# Licensing Schedule



**As soon as the Lawyers say so  
(a month or two?)**



# Where Do I Get ATAK™ ?



- **MilSuite (MilBook) – DoD CaC Card required**

**<https://www.milsuite.mil/book/groups/atak-android-tactical-assault-kit>**

**Includes current install, videos, links to current version, manual, dummies guides**