



# RAT-SAR

## SarTopo / CalTopo

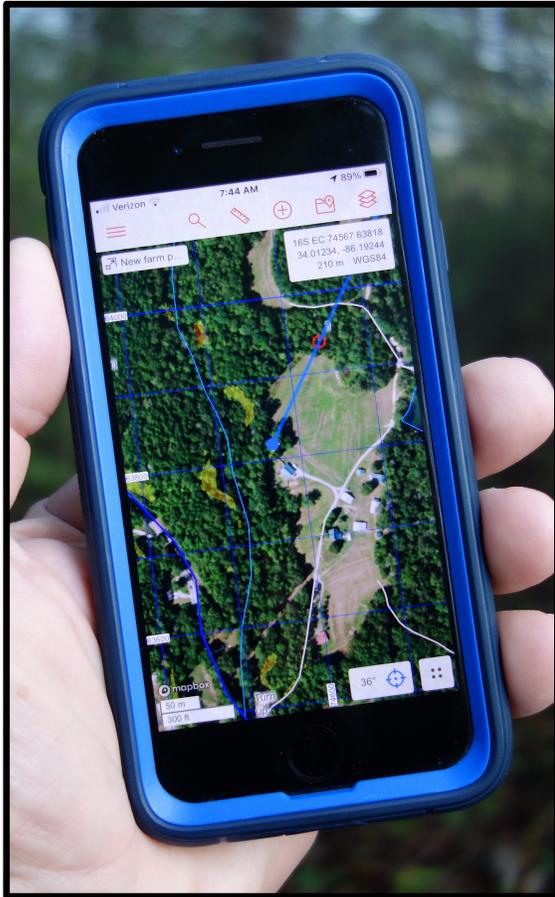
SarTopo has all the same layers and tools as CalTopo plus additional functionalities for managing search and rescue incidents. SarTopo has become the go-to mapping and management platform for search and rescue.

### How RAT-SAR uses the two platforms:

SarTopo web-based is used at the Incident Command level to manage the incident, build master maps, build search areas, track resources, manage operational periods, etc.

CalTopo App is used by searchers in the field to track their searches, see their search areas, navigate, and automatically update the master SarTopo map at Incident Command.

This presentation focuses on the CalTopo App used by searchers in the field.





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## SarTopo On The Web

The screenshot displays the SarTopo web application interface. At the top, there is a search bar with the text "Enter coordinates or a location name" and a "Polk County Search" button. The main map area shows a satellite view with overlaid search results and map layers. The left sidebar contains "Map Objects" with sections for "LPB" (1900m, 300m 25%, 800m 50%), "Markers" (Cell phone, ICP, IPP, Mark 8/11/2021, 2:06:57 PM, Pond, Rental House, Small Bones 3-4 inches, Well between marked trees), and "Lines & Polygons" (N/A, 1). The right sidebar contains "Map Layers" with sections for "Base Layers" (Hybrid), "Map Sheets", "Map Overlays" (Contours, MapBuilder Overlay, Slope Angle Shading, Geology, Public Lands, Parcel Data, Structures, Motor Vehicle MVUM, Fire History, Fire Activity, Sun Exposure), "Your Layers" (Line Of Sight Viewshed, Wilderness Area Boundary), and "Forecasts" (Weather Shading, Wind Plot, Avalanche). The bottom of the interface shows a Google logo, a scale bar (100 m, 500 ft), and a copyright notice: "Map data ©2021 Imagery ©2021, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency".





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## CalTopo App Tracking / Searcher Basics



### Why Use CalTopo?

- The CalTopo app integrates seamlessly with SarTopo, thus saving time and providing more efficient resource tracking.
- CalTopo automatically uploads detailed tracks, markers and map items to master map when there is cell coverage (real-time tracking).
- CalTopo records detailed tracks when there is no cell coverage and loads to master map automatically once cell service or WiFi returns.





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## The Basics

App  
Download

Display  
Setup

Changing  
Layers

Centering /  
Heading

Working With  
QR Codes

Tracking

Markers /  
Clues

Navigating To  
A Marker

Import /  
Export

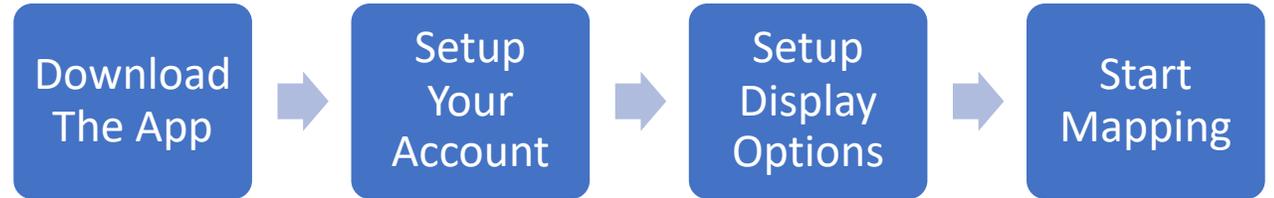
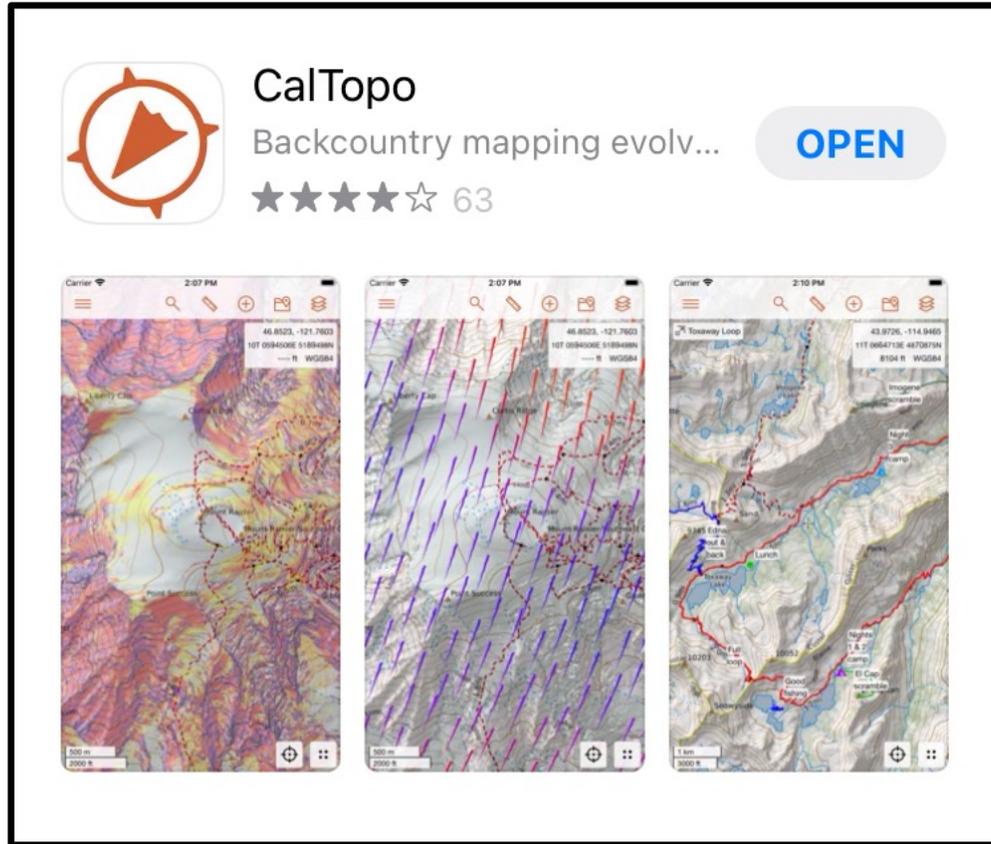
Offline  
Downloads





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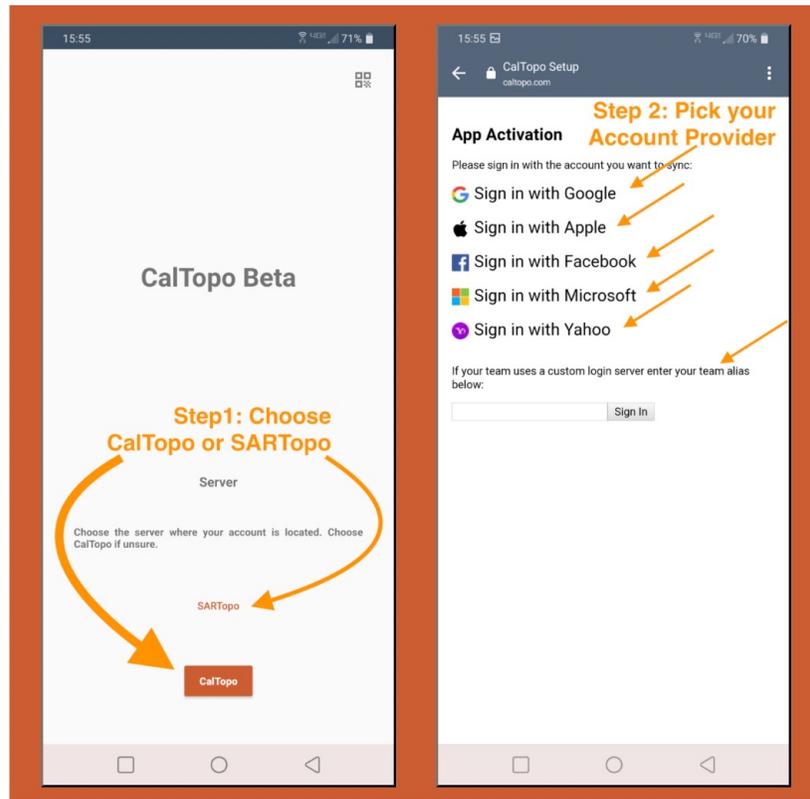
## Getting Started





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## Existing SarTopo Accounts



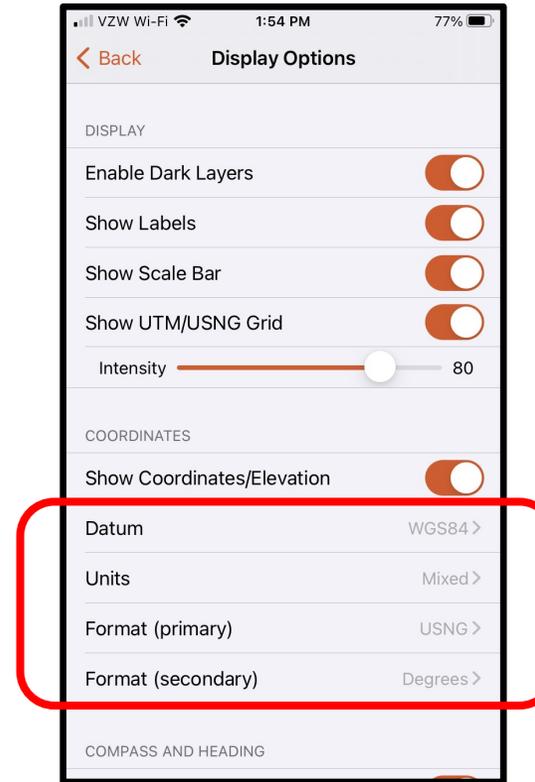
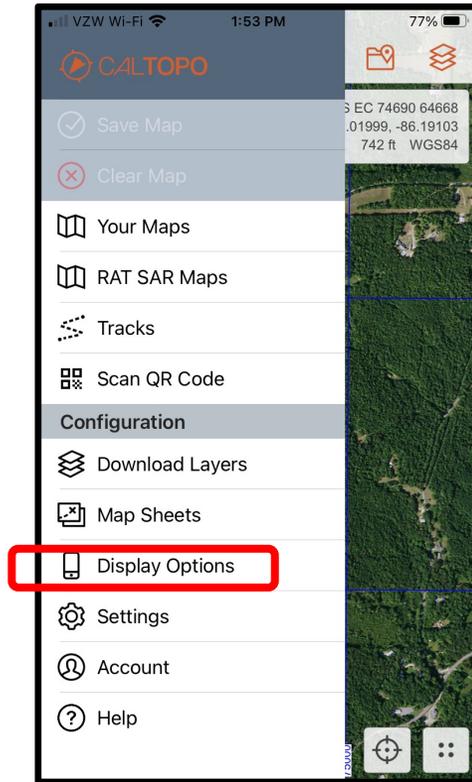
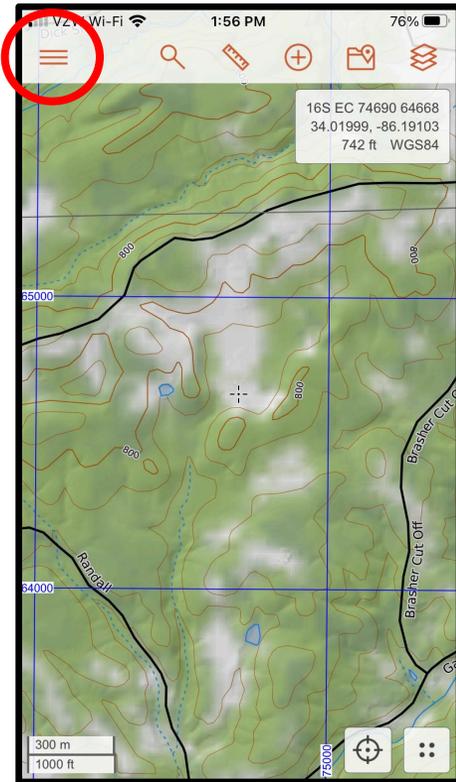
If you already have a SarTopo web account, then **choose the SarTopo server** when you initially log in to the CalTopo App, then log in with your SarTopo credentials. This will give you access to any saved maps in your SarTopo account.



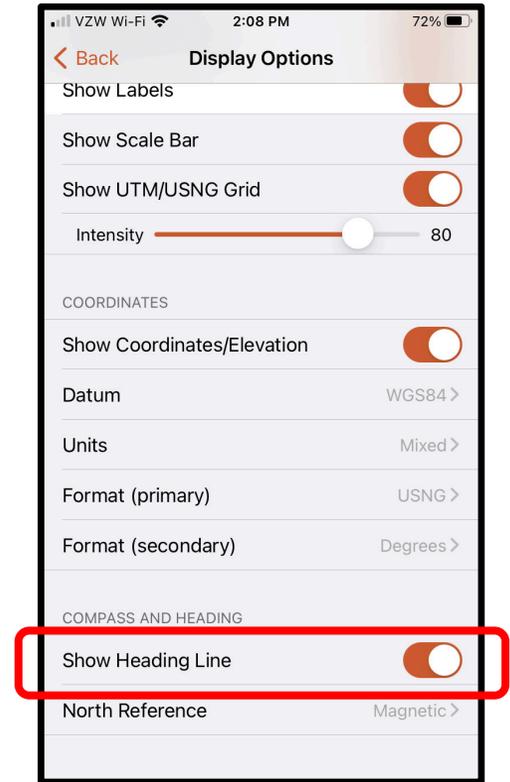


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## Display Options



Set This Data



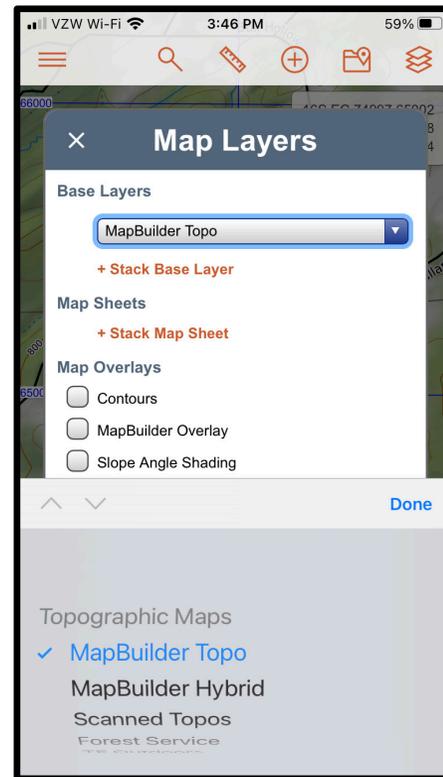
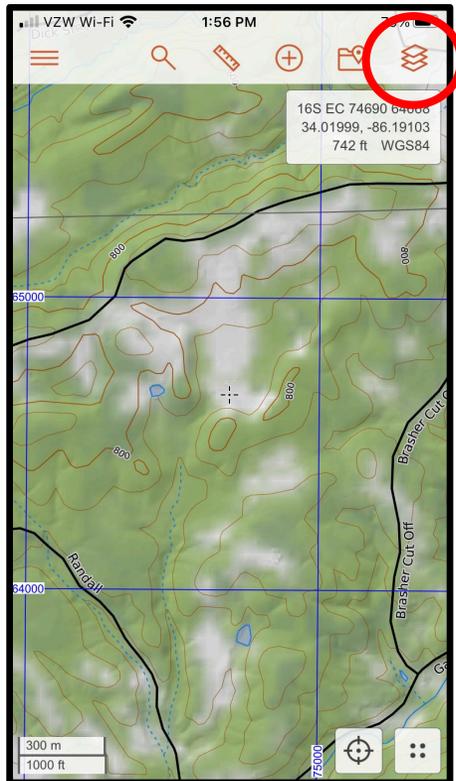
Heading Line





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## Changing Displayed Layers



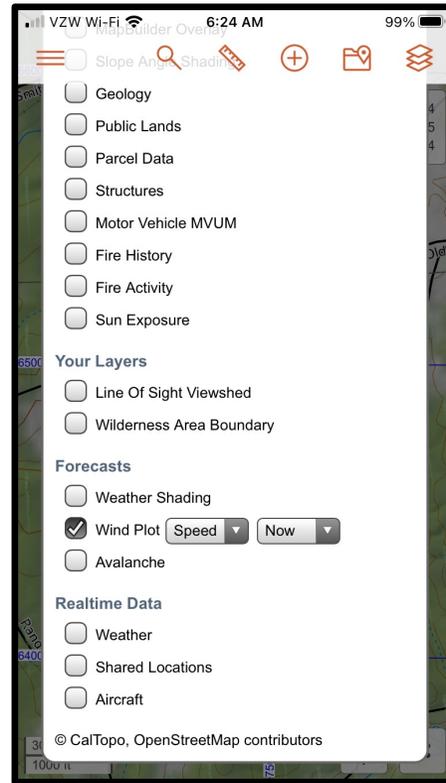
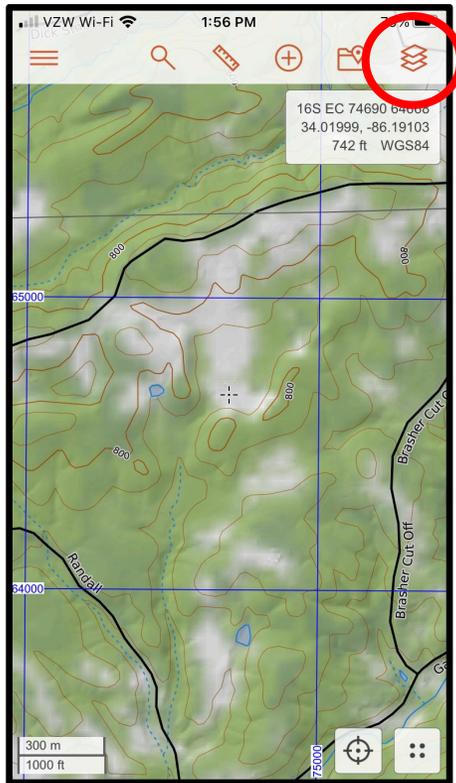
- Allows the user to choose the best working layer, such as topo maps, forest service maps, satellite imagery, etc.
- Layers can also be stacked and adjusted so multiple layers are visible as needed.
- This menu feature also allows map overlays.
- When a searcher changes the layers/overlays that they are viewing for a map on the app, it does not affect what layers/overlays anyone else is viewing.





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## Changing Other Displayed Layers



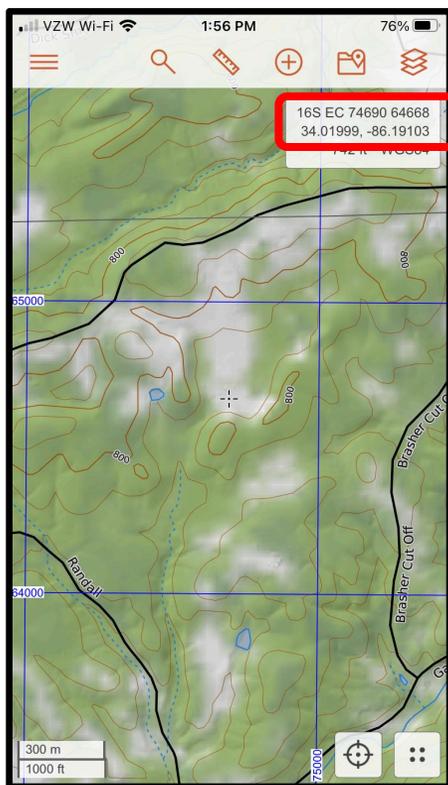
Allows the user to add additional layers to their map, such as current and future wind direction, contours, slope angle shading, etc.





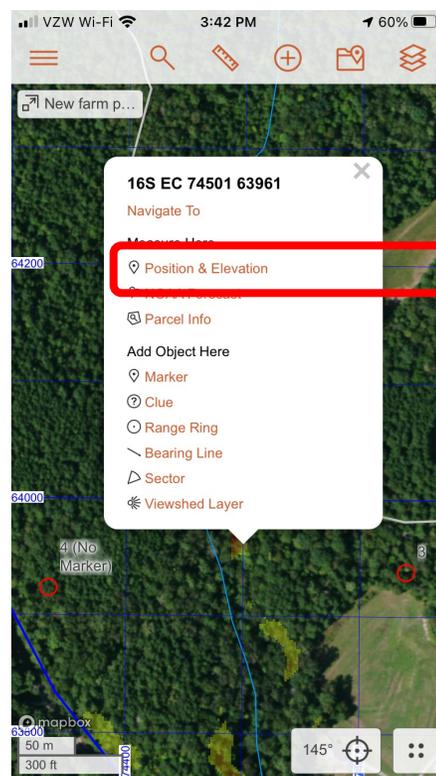
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## Grid Coordinates



Grid Coordinates of current location.

This screen displays the coordinates and datum you setup in the display options. Primary will be on top and secondary will be underneath it.



To find coordinates of an unmarked location: long press with finger on the area, when the screen pops up click on "Position & Elevation" to find the coordinates.

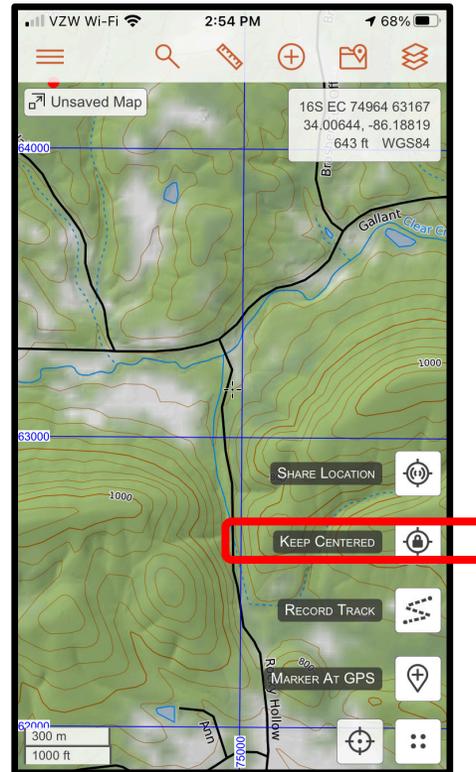
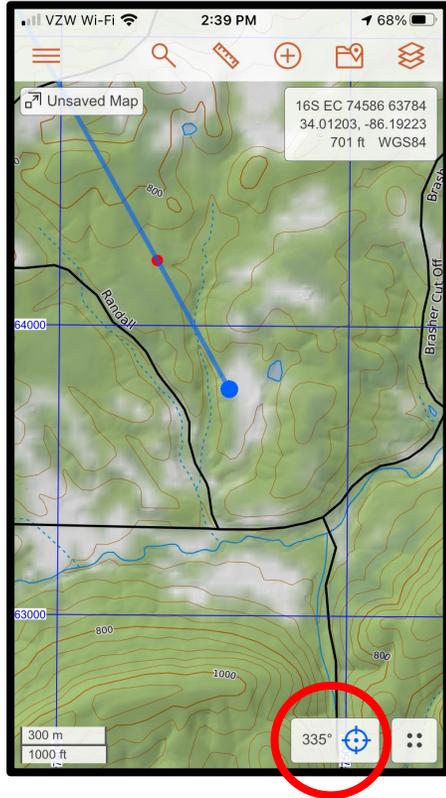
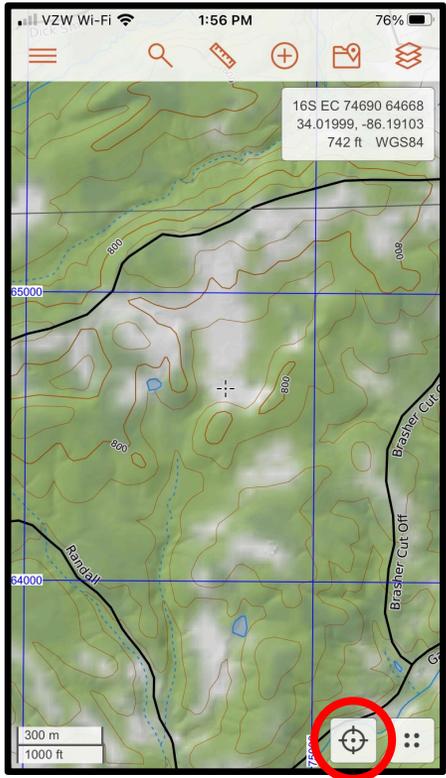
You can also add a marker, navigate to this area, or add other map objects.





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## Centering / Heading Line



- Centers the map at your current GPS Location and displays the azimuth your phone is pointed.
- Blue Heading Line points the direction your phone is facing. This is very useful for maintaining a direction of travel during an area search, or to navigate to a point on the map.
- The Keep Centered option will keep the heading line active during your mission.

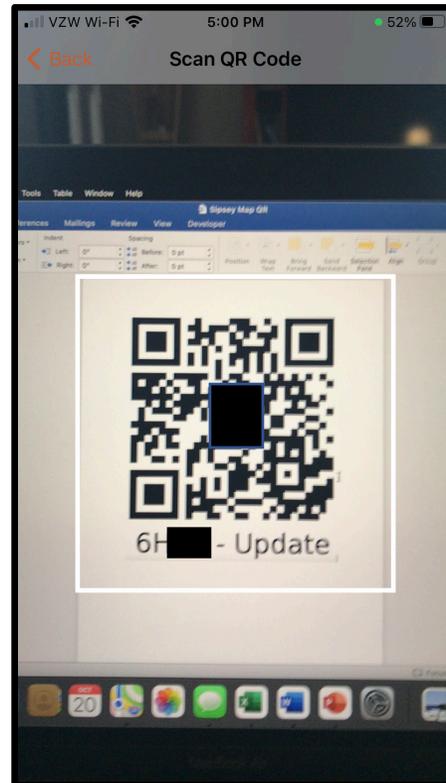
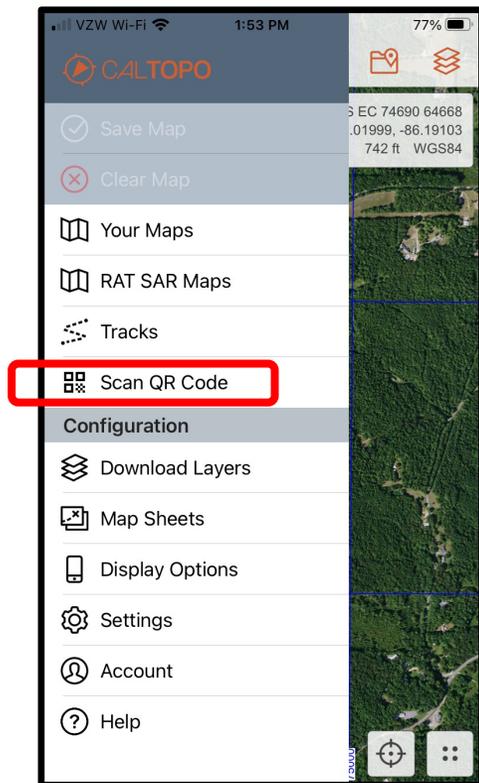
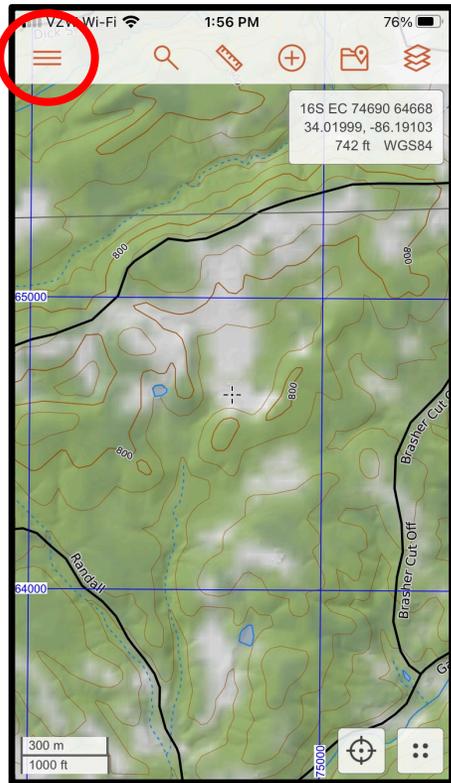
**Note: The mobile app always has north up on the map no matter what direction you are facing.**





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## Scanning a QR Code



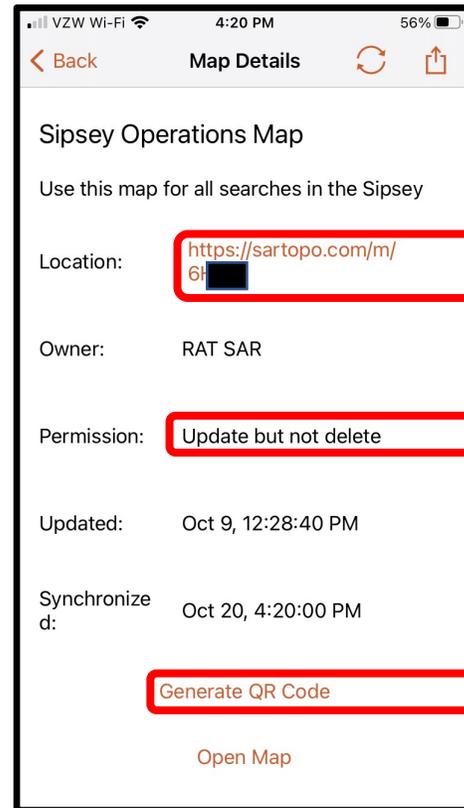
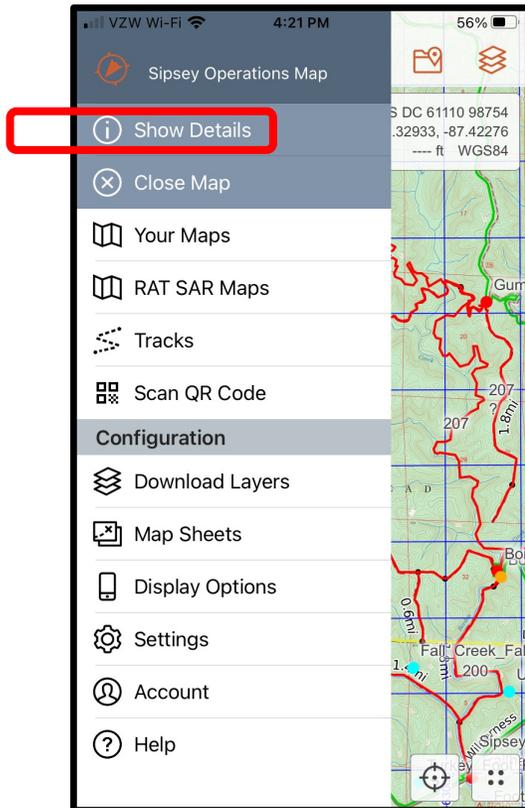
- Scanning a map QR code makes it easy to put every searcher on the same master map.
- Typically, Incident Command builds the master map in SarTopo and generates a Read, Write or Update QR code for the searchers.
- Map must be Write or Update enabled to automatically update all devices on the same map.





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## Map Details



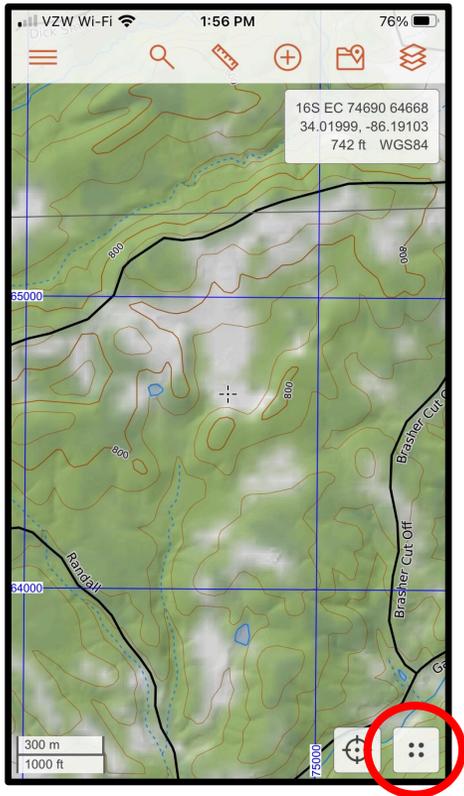
- Gives an active link of the map.
- Shows if the map is a Read, Update or Write map.
- Can generate a Read, Write or Update QR code that others can download.



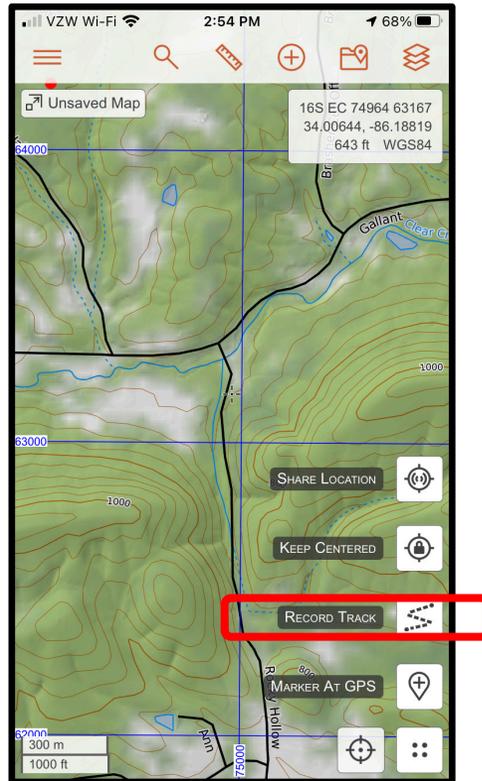


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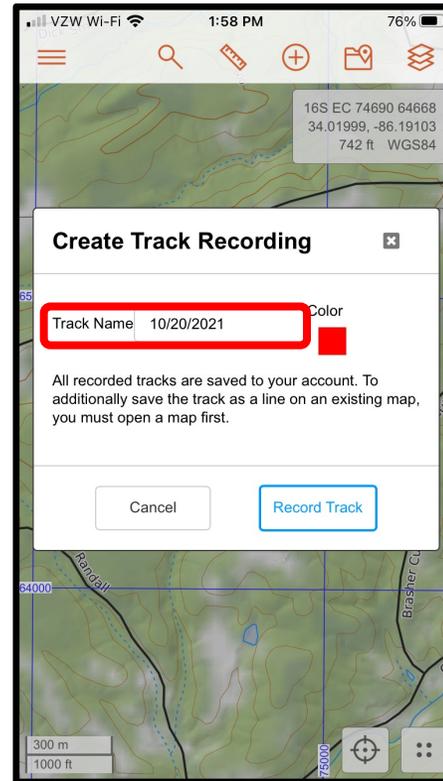
## Tracking With CalTopo



Step 1



Step 2



Step 3

Open up the map you wish to track on **FIRST** in the mobile app and then start recording a track. This will set the track to record to "Account + This Map" by default.

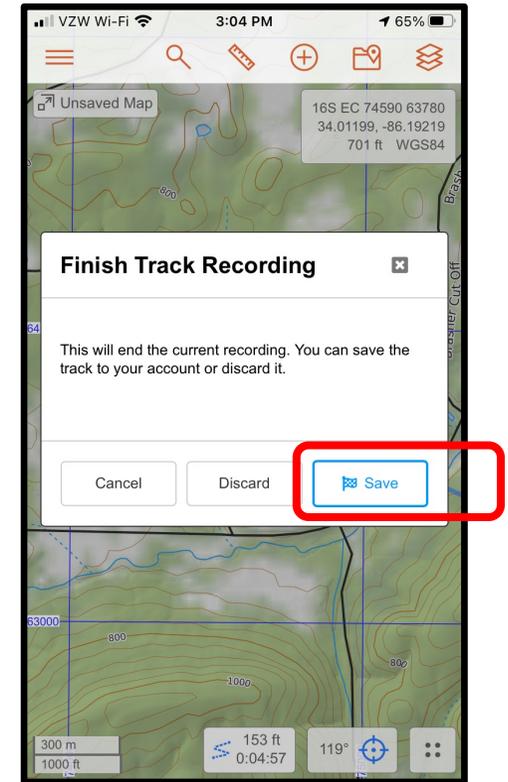
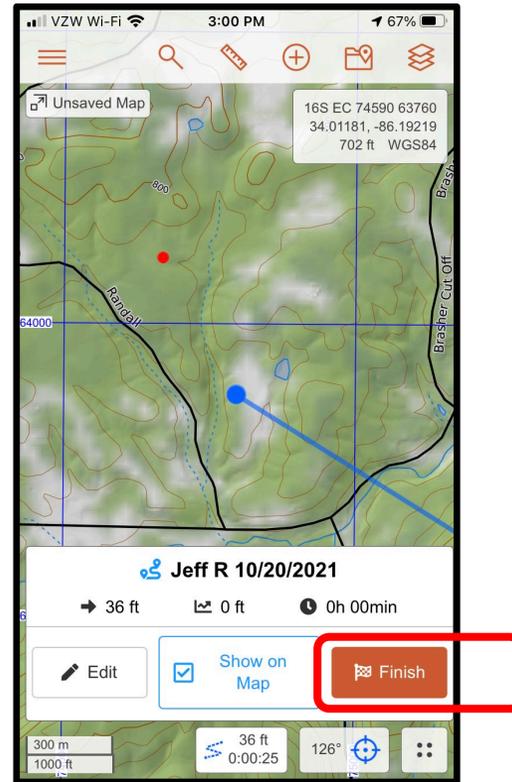
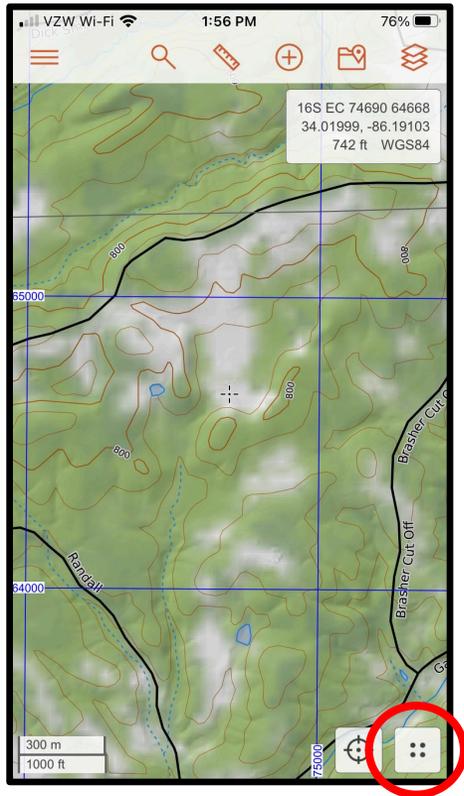
Note: The track name defaults to the current date. Be sure to rename this with your name, team name, etc. and the date so IC can differentiate between teams, dates, and tracks. Track color can be changed to differentiate your track from others.





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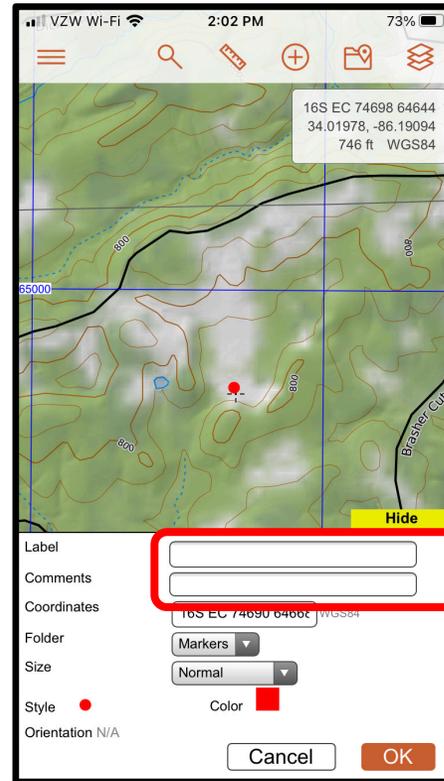
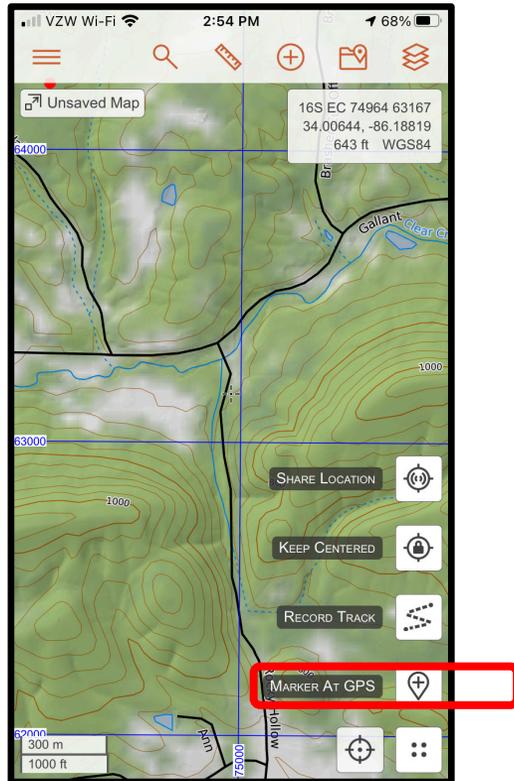
## Finish Tracking





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## Adding A Marker At Current Location



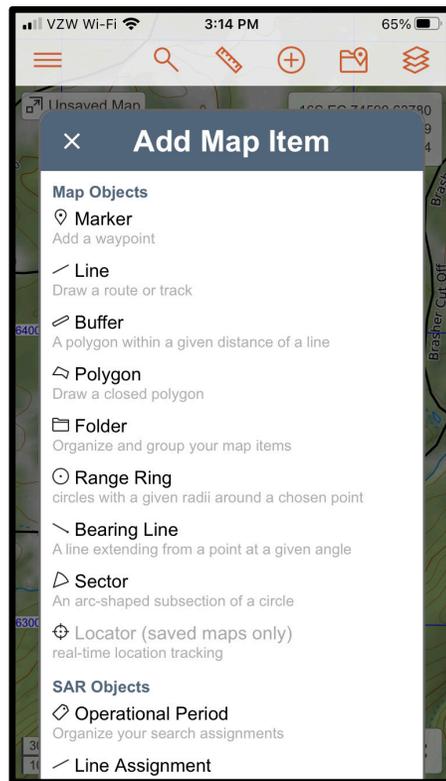
- Adds a marker at your current location.
- A label name can be added, as well as comments.
- Style and color of marker can be edited.
- Marker can be added to different folders.





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## Adding A Marker Or Other Map Objects



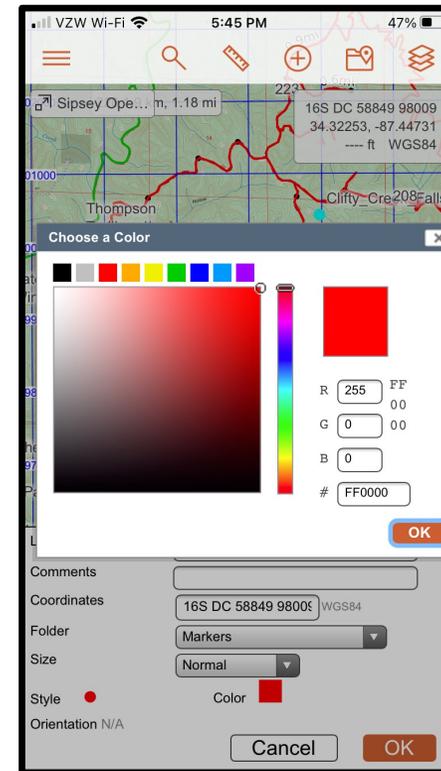
- Marker is added at crosshairs, not at the current GPS location.
- A label name can be added, as well as comments.
- Style and color of marker can be edited.
- Other Map Objects and SAR Objects can be added with this menu.





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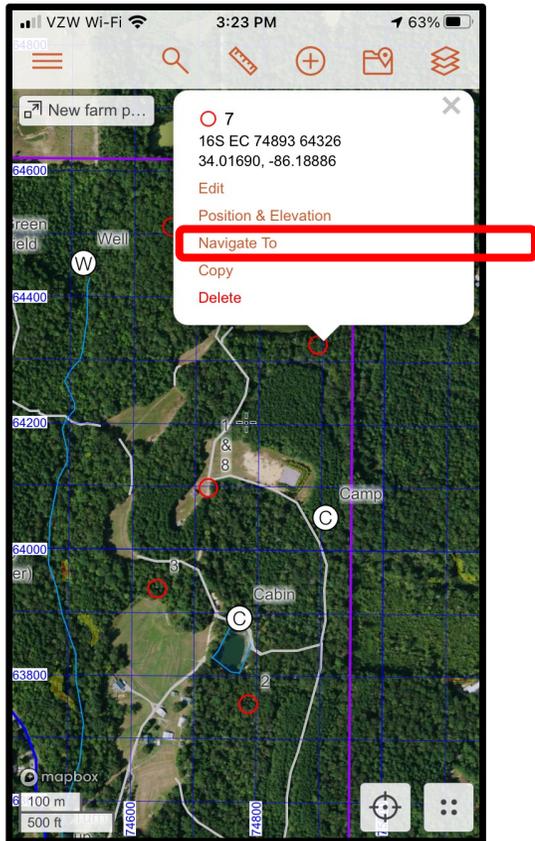
## Marker Styles / Colors





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## Navigating To A Marker



1. Tap on a marker on the screen.
2. Click on “Navigate To”
3. Bottom of the screen shows distance and azimuth to the destination from your current location.
4. Turn until the blue heading line is lined up with the azimuth line and proceed to the destination.

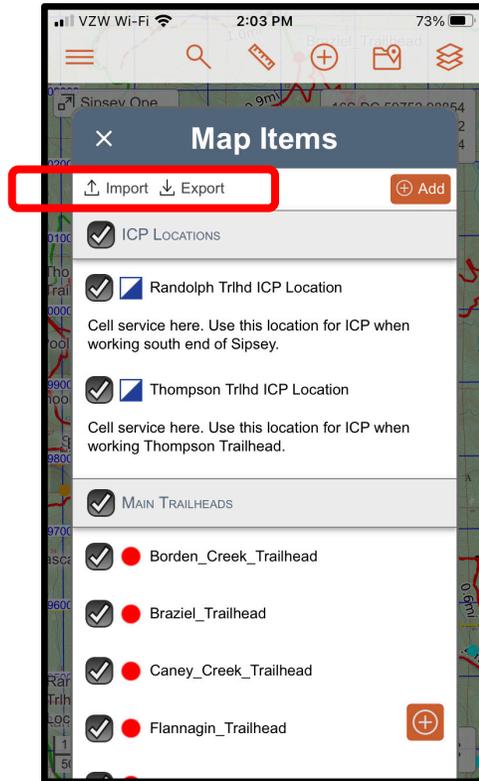
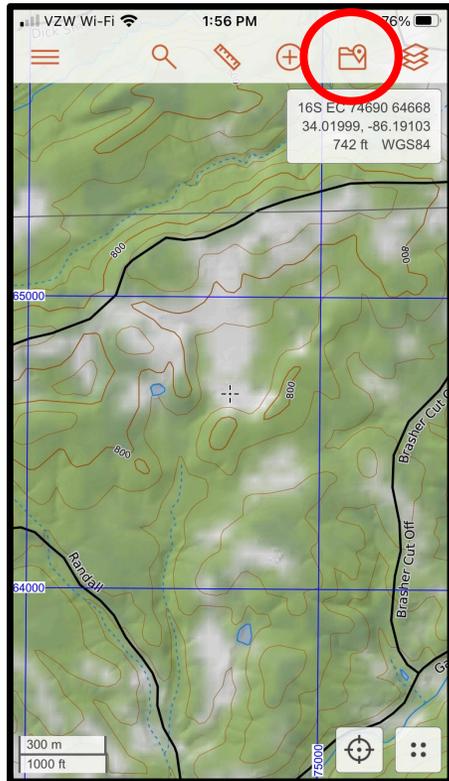
Example shows 2058 feet on a 34 degree azimuth to reach the destination.





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## Importing / Exporting Files



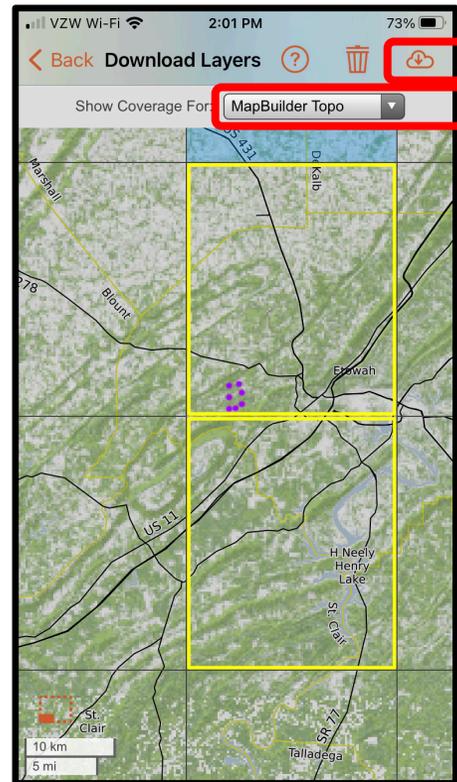
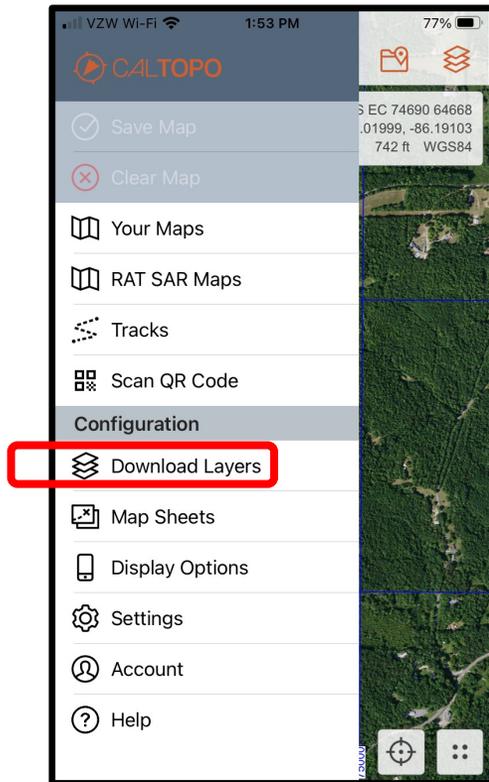
- While the tracking feature automatically updates tracks and markers to the master map (as long as the map is an Update or Write map), there may be times when you wish to directly import or export your map items.
- Available file formats are GeoJSON, KML (Google Earth) and GPX.
- Choose Import or Export, check or uncheck items you want to transfer, then export the file via email, text, AirDrop, etc.
- **This feature can also be used to de-clutter your working map without removing the items from the master map. This is handy on large searches with a lot of tracks and operational periods.**





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## Downloading Layers For Offline Use



This feature is handy for using CalTopo in an area with no cell phone coverage, as long as the layers are pre-downloaded.

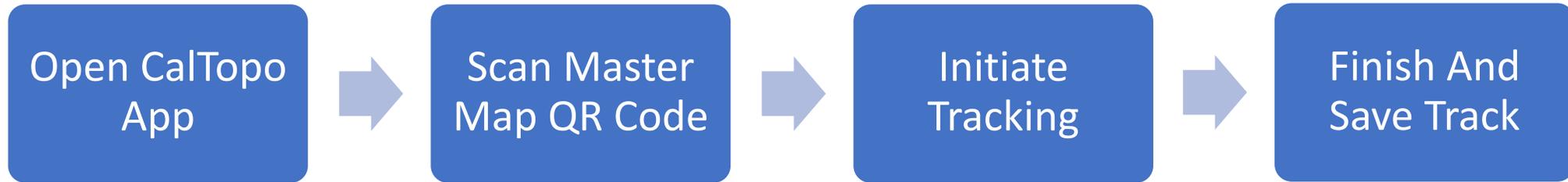
1. Bring up the map you want to download
2. Click on Download Layers
3. Touch the screen to highlight areas you wish to download.
4. Click the Download Icon.
5. Check all the layers you wish to download.
6. Layers are saved to your phone for offline use.





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## Searcher Tracking Simplified



- If there is no master map then center your map to make sure your phone GPS is locked on and initiate tracking. The tracking files can be edited or downloaded later in the desired format. **It is always best to open up the map you wish to track on FIRST in the mobile app and then start recording a track.** This will set the track to record to "Account + This Map" by default.
- If there is cell phone service in the assignment area, then your tracks will update in real time to the SarTopo master map and all other searcher maps that are working on the same map. If there is no cell phone service, put your phone in airplane mode to conserve battery. Once you are finished with the mission and back at IC (or obtain cell service), the tracks will auto-populate on the master map (if this was the active map you tracked on).





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## Tracking An HRD K9 (Experimental)

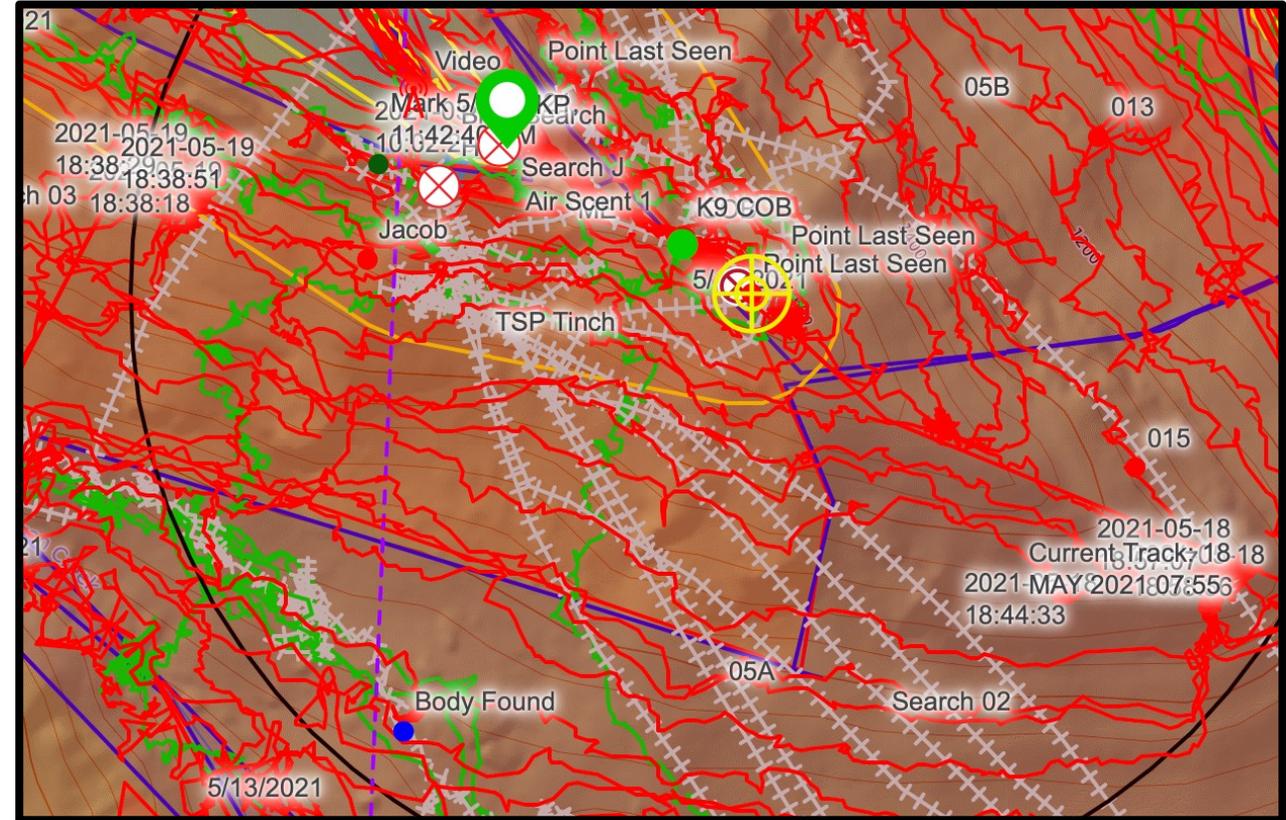
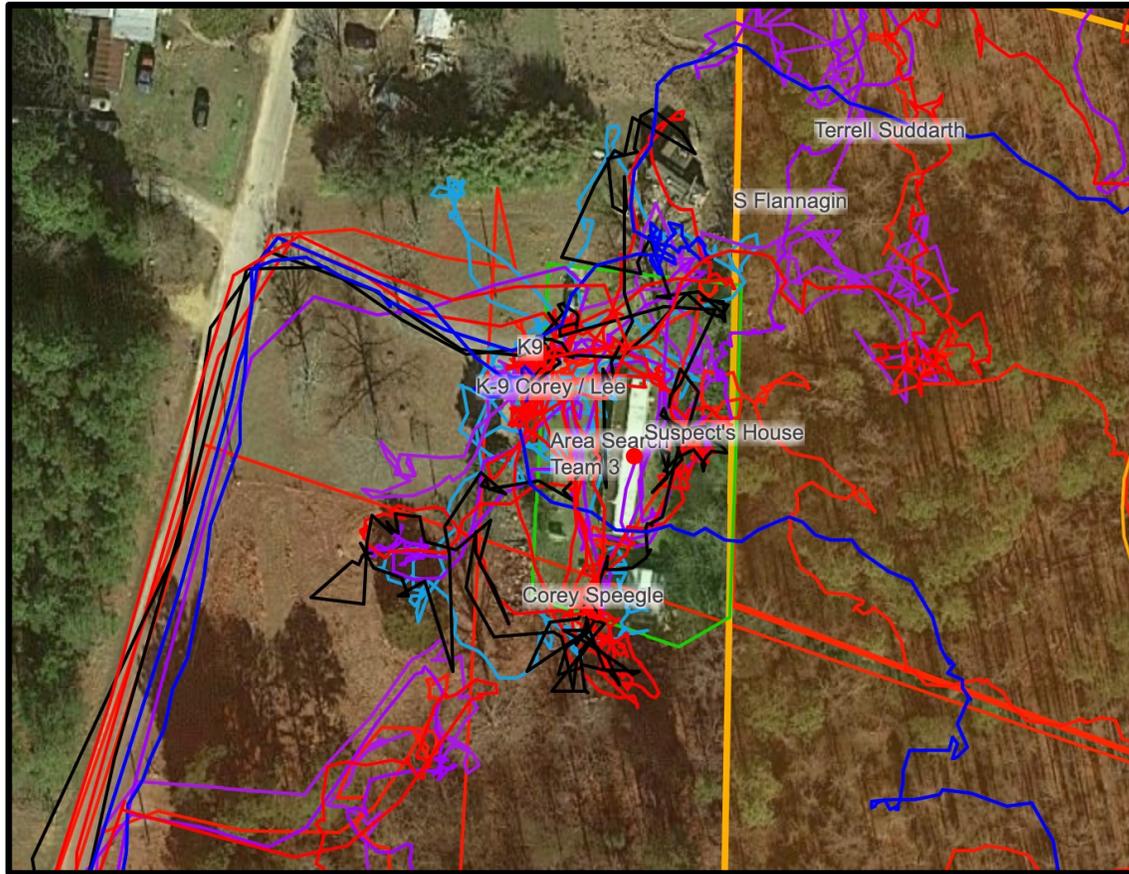
- No cost if the handler has an old smart phone that no longer has cell service.
- Connect the old phone to WiFi and download the CalTopo App. This can be done by toggling from the handler's active phone via the active phone's hotspot.
- Secure the old phone on the K9 and initiate CalTopo tracking on the old phone.
- Master map will be live updated as long as the handler has cell phone service and the K9 is close enough to the handler to have access to the handler's hotspot.
- If there is no cell phone service, the K9's tracks will still be recorded and will update on the map as soon as there is cell phone service or WiFi that the K9 phone can toggle to.





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## Examples





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For more information and online training visit:



For more information on CalTopo and SarTopo visit:  
<https://caltopo.com/help>

