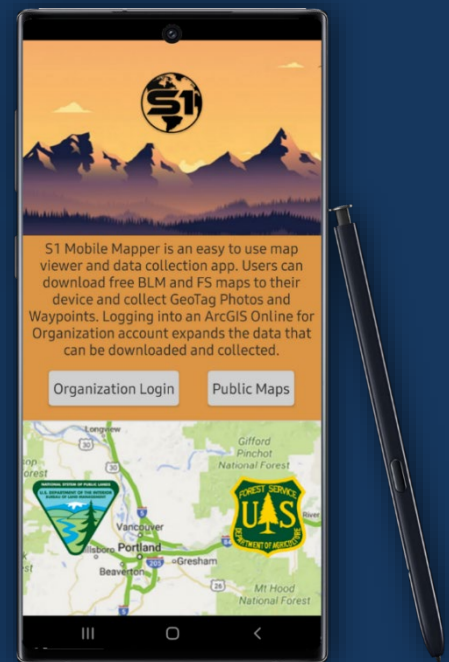




S1 Mobile Mapper Version 5.4

Public User Guide



OR/WA Mobile GIS Team
5/30/2024



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About



The **S1 Mobile Mapper** is a custom application built by the Service First (S1) Mobile GIS team, sponsored by Oregon State Office Bureau of Land Management (BLM) and Region 6 U.S. Forest Service (USFS). The Public Viewer mode of the S1 Mobile Mapper application allows anyone to download and view maps and collect Tracklogs, Waypoints and GeoTag Photos. The application is designed specifically for those wanting to access map content on a mobile device in an offline environment. The application is built to run on a mobile device running the Android operating system, using the ESRI Runtime Software Development Kit (SDK) framework.

The full application is available to agency employees with a recognized agency ArcGIS Online (AGOL) account. For a full list of application capabilities, or application installation instructions, see **the S1 Mobile Mapper Agency User Guide**.

For additional information about the application, visit the S1 Mobile Mapper website:

<https://www.blm.gov/services/geospatial/mobile-GIS/s1mobile>

Launching Application

The application is launched by tapping on the application icon found on the device application list.

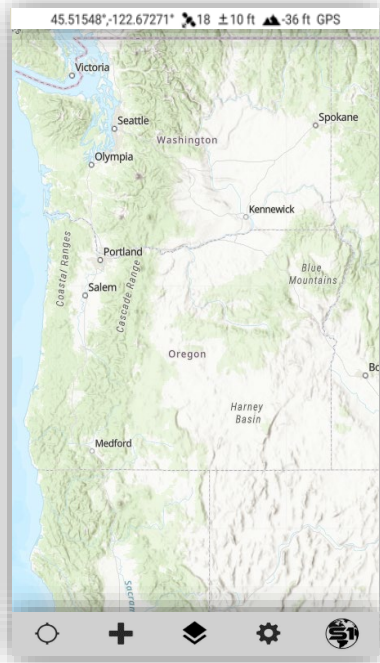


Welcome Screen and Public Mode

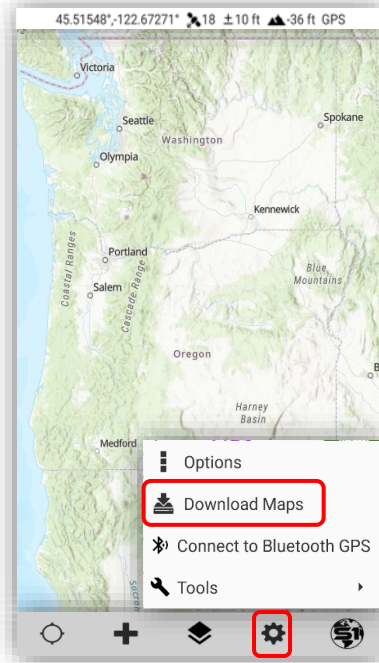
The application opens to a welcome screen with a brief description of the application. The user can either login to the full version of the application by selecting the Organization Login button, which requires an ArcGIS Online Organization Account, or select the Public Maps. The Public Maps option allows anyone to download map products published by the BLM and USFS, capture S1 Waypoints, Tracklogs, Sketches and Geotag Photos, and deploy a few of the app's tools. Selecting the Public Maps option will send the user to a map gallery of available map products for download. For more information on downloading maps, go to [Downloading Content](#).



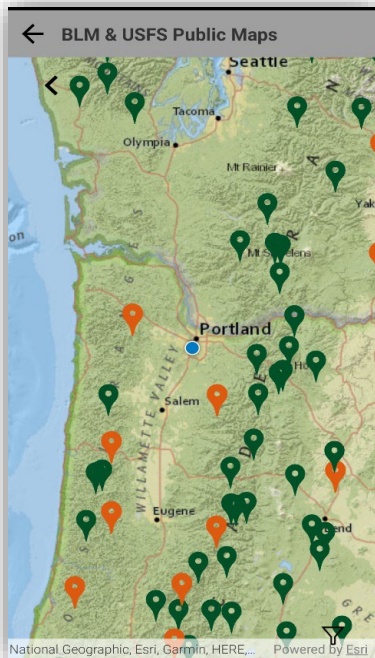
Start Here



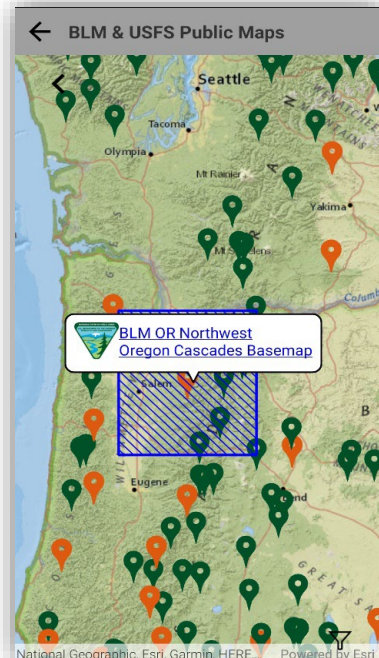
- 1 Open S1 Mobile Mapper App, then click on the Public Maps button. A Default map opens in the Map View window.



- 2 Pan to the location of interest, then tap the Tools/Options Button and select Download Maps.

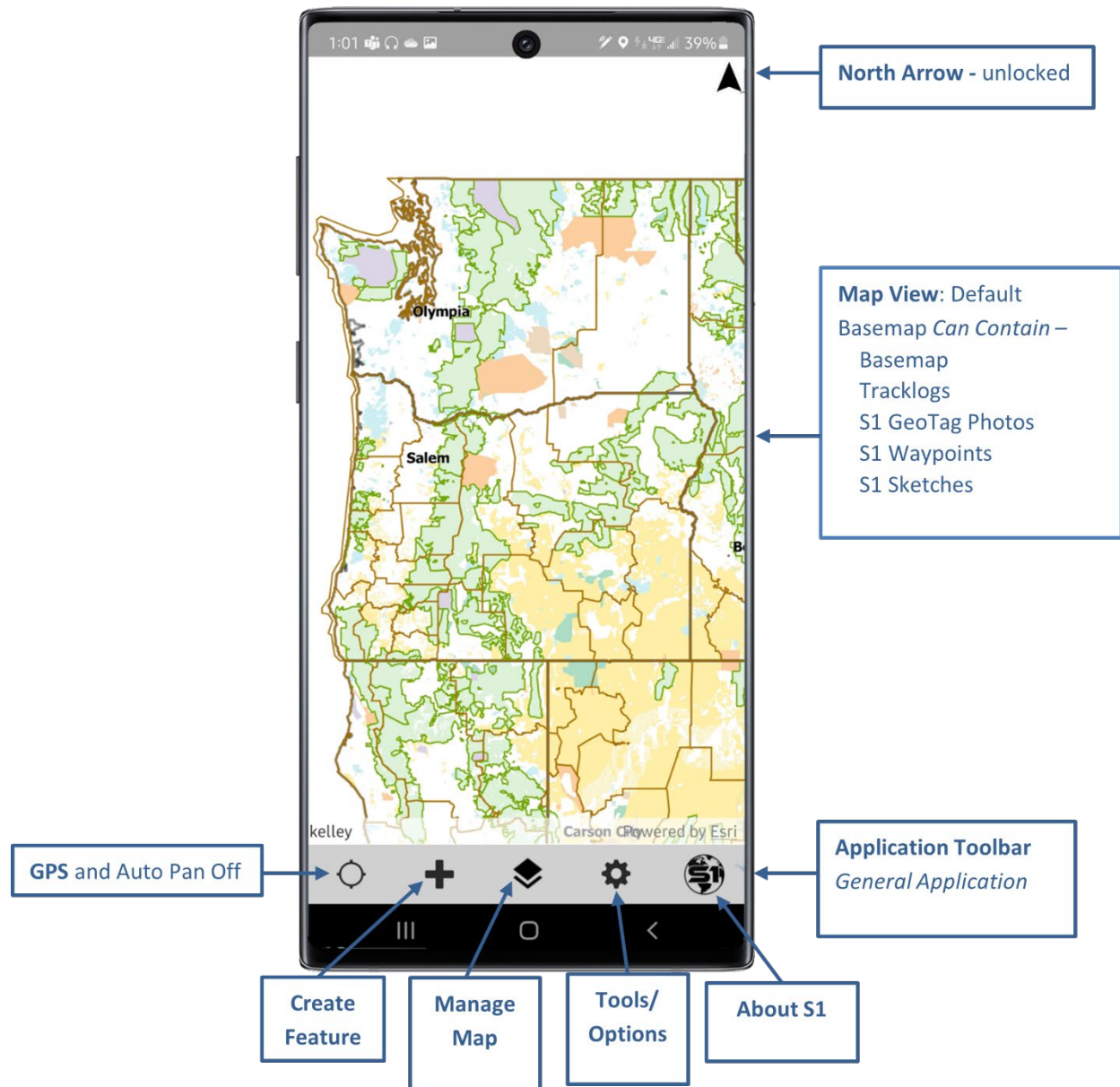


- 3 Select a map pin. Orange is BLM and Green is USFS Public maps.



- 4 Tap on the pop-up window and download the Public Map selected in the Map View.

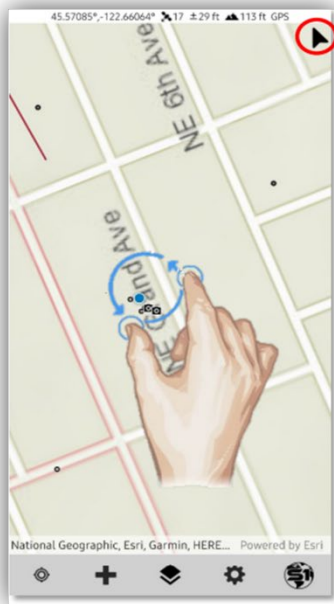
Application Interface



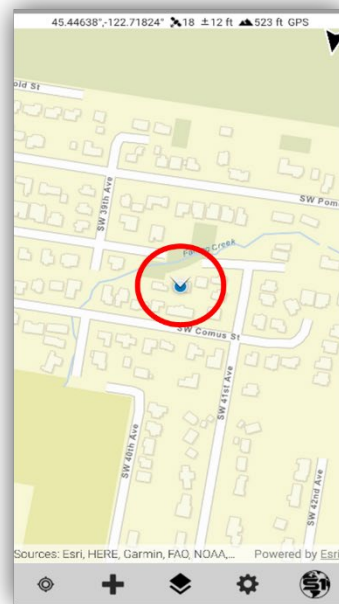
Note: When first opening the S1 Mobile application, you should see the default basemap shown above. If not, try zooming out to see a larger area by placing two fingers on the Map View and sliding them apart on the screen.

Map View Rotation



Users can rotate the main map view manually to the direction desired. This option allows the user to orient the map view relative to the direction they are facing on the ground. Other options are, tapping the North arrow once will engage auto rotation of the map view based on the direction the device is facing (using internal device sensors). Tapping it once more will return to “North up” mode.

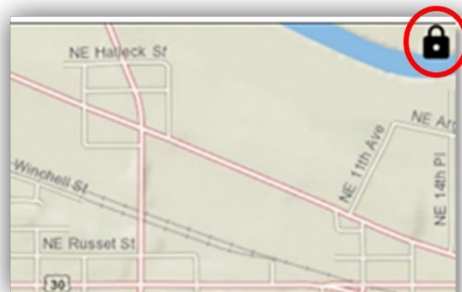


Map View Rotation



Navigation Viewshed

- To rotate the main map view manually, place two fingers on the screen slightly apart and **rotate** them to whatever orientation you would like.
- Tap the arrow  to engage auto-rotation and then the navigation viewshed will indicate the direction of travel.
- To orient the map back to North and turn off autorotation, tap the **black arrow** again in the upper right.
- To lock the screen and temporarily disable screen rotation, **Long press** the black arrow  until it turns to a padlock icon, shown below.
- To unlock the screen rotation again, **Long press** the padlock icon again.



Locked North Arrow

Activate GPS

- Tap GPS Icon to turn on GPS and to activate Auto Pan.



- If you pan on the map, Auto Pan turns off, but GPS remains on.
- Tapping the GPS icon again will turn Auto Pan back on.
- Tapping the GPS icon when both GPS and Auto Pan are on will turn GPS and Auto Pan off.
- Once GPS position fix is obtained, your current location will display on the map as a blue dot.
- When the GPS is turned on, the GPS Status bar appears at top of the screen, which displays:

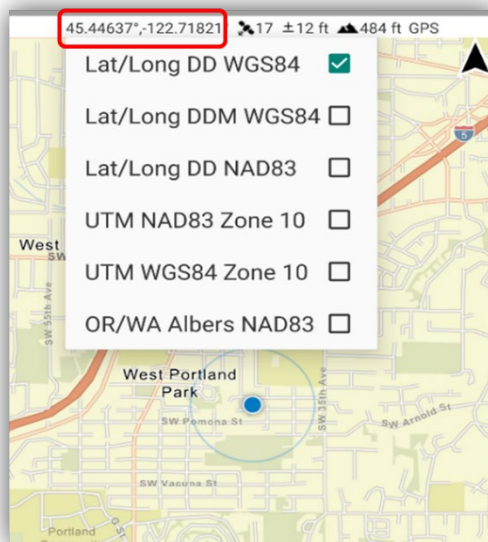


- Current **GPS Location information**.
- 📶 = Number of satellites used in position fix.
- ± = Estimated accuracy of location (in meters or feet).
- 🏔️ = Estimated elevation of location (in meters or feet).
- **GPS Source/Quality** will be displayed as one of the following:
 - No Fix – No satellite fix.
 - GPS – using mobile device onboard GPS location.
 - DGPS – using Bluetooth GPS receiver location.
 - RTK - using Bluetooth GPS receiver location with *Real-time corrections*.

45.44636°,-122.71821° 19 ±12 ft 497 ft GPS

GPS Position

- **GPS location Coordinates** are displayed in World Geodetic System 1984 Decimal Degrees (WGS84 DD) by default. To change the coordinate system displayed, **tap the GPS Status bar**, and select another coordinate system. Alternatively, change this in [S1 Options](#).



Coordinate System Menu

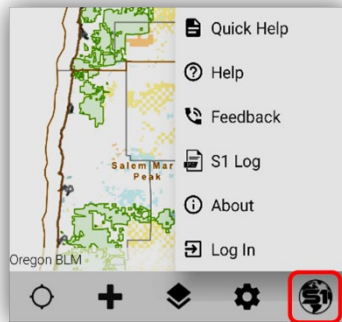
- Estimated **Accuracy** is displayed to a 68% confidence interval by default. The display value can be changed to a 95% confidence interval in S1 Options. The default accuracy units are displayed in meters, but this can also be changed in [S1 Options](#).

Note: This function only affects the display value on the device. All data collected with GPS uses the 95% confidence interval to record data.

- For the highest possible location accuracy, set your device's Location setting to **GPS only** in the mobile device settings. Once GPS is activated, the app will alert if the device is set to any other Android Location setting such as High Accuracy mode.
- It is possible to connect an external, high accuracy GPS receiver to provide location information to the app instead of using the device's internal GPS. For more information on this topic, see [External Bluetooth GPS Receiver Support](#) section.

About S1 Menu

The About S1 Menu is located on the Application Toolbar.

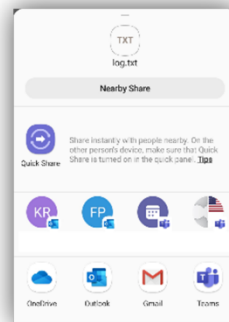


S1 Mobile About Menu

- **Quick Help** opens a **Quick Reference PDF guide** which labels the different S1 Mobile Application modes, toolbar labels and button ID labels.
- **Help** opens the S1 Mobile Mapper User Guide (this document).
- **Feedback** opens a form to submit feedback or S1 Ideas. **Note:** Requires a network connection.
- **S1 Log** are user readable log files for troubleshooting, and they can be shared. S1 log files track feature service & web map downloads and syncs, noting the number of features and attachments. They also track downloaded basemaps, but do not track any app activity involving sideloading, only with content in AGOL.



S1 Log File



Apps List for Sharing txt Logs

- **About** provides information on the current version of the app installed, the app description, the **Privacy Policy**, and **End-User License Agreement**.
- **Log In** is the Agency login, not public.

Downloading Maps

The S1 Mobile application can download and store multiple **Basemaps** for offline use to the mobile device, so the user can interact with **Basemaps** and collect **Waypoints**, **Tracklogs**, **Geotag Photos** and make **Sketches** on the map view, when in areas of limited or no network connectivity.

Basemaps

This section describes how to obtain Basemaps for offline use with the S1 Mobile Mapper application. Basemaps are multi-scale tiled image cache packages (.tpk), which quickly display image tiles appropriate for the current map scale. They are downloaded to mobile devices over Wi-Fi or cellular networks or can be manually copied (“side-loaded”) to a mobile device via Windows Explorer.

The available Basemaps are a collection of map products produced and distributed by the Bureau of Land Management (BLM) or U.S. Forest Service (USFS). S1 Mobile Mapper can store many Basemaps on a device at a time and the user can switch between maps to set the appropriate Basemap for their current viewing needs.

Upon first opening the S1 Mobile Mapper application, it displays a **Default Basemap**. Unlike other user downloaded basemaps, **the Default Basemap cannot be deleted from the device**.

Assumptions:

- S1 Mobile Mapper Application is open on an Android mobile device.
- Mobile device has connection to 4G or WIFI network.

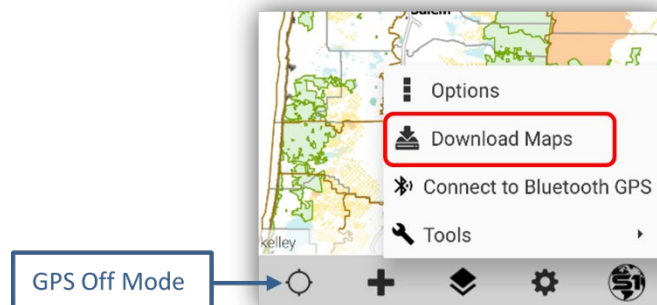
Search for Basemaps

- Tap the **Tools/Options** button on the **Application toolbar**.



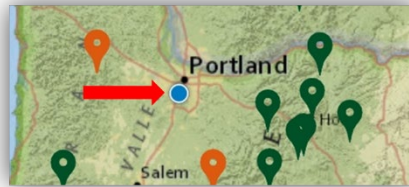
Tools/Options button on the Application Toolbar

- Tap **Download Maps** from the Tool/Options List.



Download Maps Option

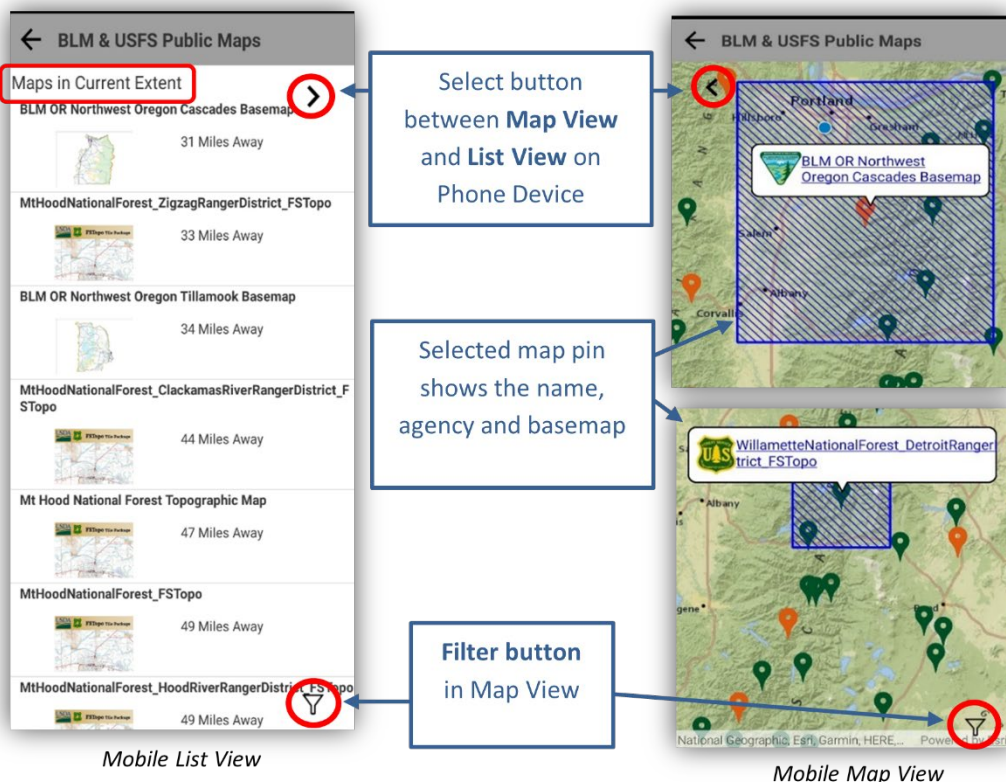
- Upon opening the **Maps available for download** in **Map View** or **List View**, the **GPS** is automatically activated on your device.



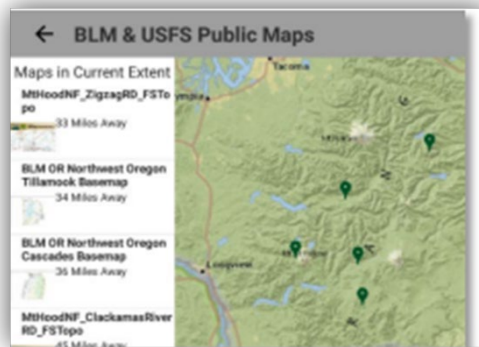
Map View with GPS On

Note: The List or Map View could take time generating depending on how easily the device can determine your current location. To reduce the time, it takes to generate the List or Map View, open the Android device **Settings** menu and search for the **Location** settings. Ensure the device is in **High Accuracy mode**.

- Once your location is determined, the application displays all the maps available for download. The **orange pins** are BLM maps, and the **green pins** are US Forest Service (USFS) maps that represent the centroid of the maps available in that area.
- On mobile devices**, a map is displayed, and an arrow button (<) is displayed at the top of the map. Selecting the arrow button (<) will allow you to access the **Maps in the Current Extent** menu (List View).



- On a tablet**, the **Maps in the Current Extent** menu (in the List View) are displayed along the side of the Map View.

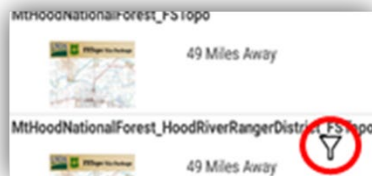


Tablet List and Map View

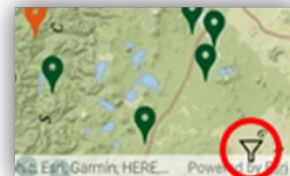
Filtering Maps by Keyword, Distance, or Sort

The **Map View** and **List View** maps can be filtered and sorted using the **Filter Tool**.

- Tap the Filter button on the bottom right-hand side of the view.

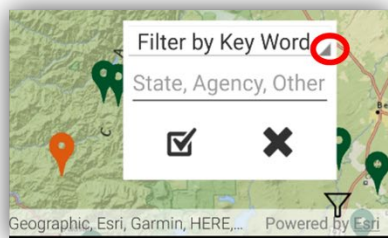


Filter Tool for List View

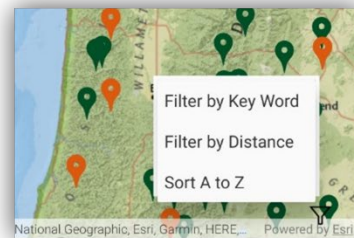


Filter Tool for Map View

- To filter by Key Word, by Distance or Sort A to Z, select your option from the filter pulldown list.
- If filtering by **Key Word**, type a key word such as State, Agency, or location. (Example: Deschutes) and then tap the **Submit** button.
- If filtering by **Distance**, type a numerical value for the distance radius in miles and then tap the **Submit** button.
- If sorting by **Sort A to Z**, select Sort A to Z option and then tap the **Submit** button to initiate the list filter.



Filter Tool Options in Map View



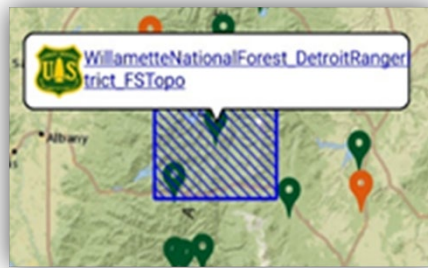
Filter Tool Pulldown List

- **To clear the Filter**, tap the Cancel button on the bottom right of the screen (X).

Selecting and downloading the Agency Basemaps

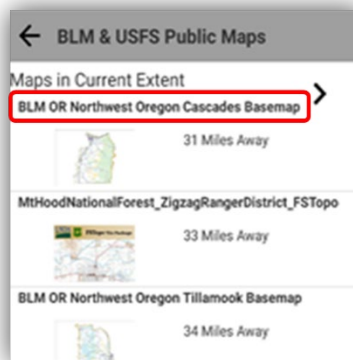
- **Map View:** Pinch and pull on the map view to place your area of interest in the center.
- Select a **Green Map Pin for USFS Maps** and an **Orange Map Pin for BLM** in an area of interest.

- A box containing the name of the map and the icon of the agency that published the map appears.
- Tap the blue text displaying the map name to open the selected **Map Information Window**.



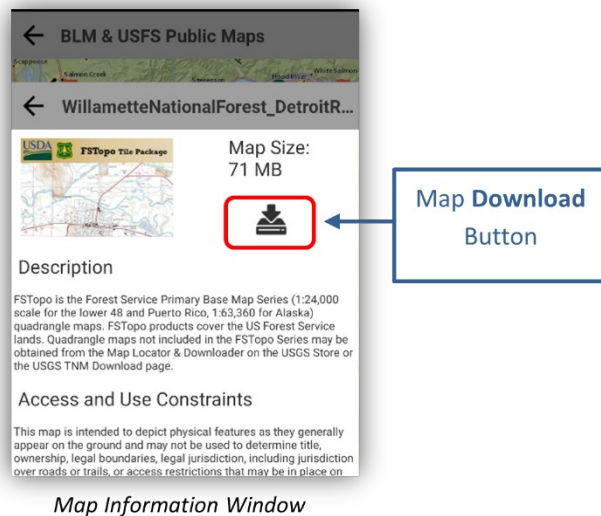
Selected Map View Extent

- **List View:** The list view opens with all the maps available in the map extent from the map view.
- The initial list order is determined by distance of the centroid of the map to your current location.
- To add more maps to the map list, go to the Map View, zoom out or pan to another location.
- In the List View, tap the map name to open the selected **Maps Information Window**.



Selected Map Name in the List View

- The **Map Information Window** list the map Description, Access and Use Constraints, Map Size, and the **Map Download** button.
- Use the Map Download button to **download** the **Agency Authored Basemap**.
- **To close the Map Information window**, select the back button.

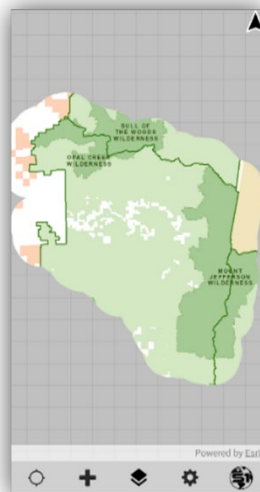


- A **spinner** will appear in the application toolbar with the **percent downloaded** in the center of the spinner.



- When the download is complete, the basemap is automatically added to the Map View as the current basemap.

Note: Basemap download speed depends on the size of the map and network speed.



Downloaded Agency Authored Basemap

- **You can download more than one basemap at a time.** Tap the Tools/Options button on the Application toolbar and select **Download Maps**.

- The map view will go back to the default map with the BLM and USFS map pin locations. Then select another basemap to download. Basemaps can be managed in the [Managed Map Layers](#) listed below.

Manage Downloaded Basemaps

Starting with S1 Mobile Mapper v5.3, we can **download and view multiple basemaps in the main map view**.

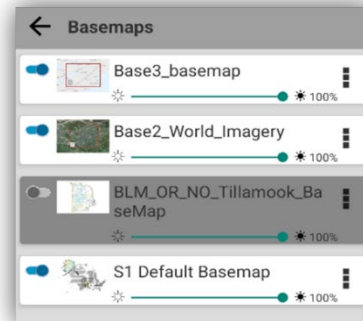
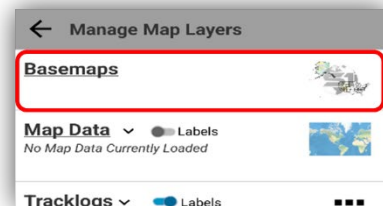
We can manage basemaps and basemap tools from **Manage Map Layers**. The **Basemap** page allows users to change or add any of the available downloaded basemaps to the map view along with some added tools to manage basemaps; reorder, **transparency settings**, **toggle on/off**, **delete the basemap** and the **Zoom to basemap** tool.

- Tap the **Manage Map Layers** button on the Application Toolbar. This is where you will manage basemaps that have been downloaded to the device.



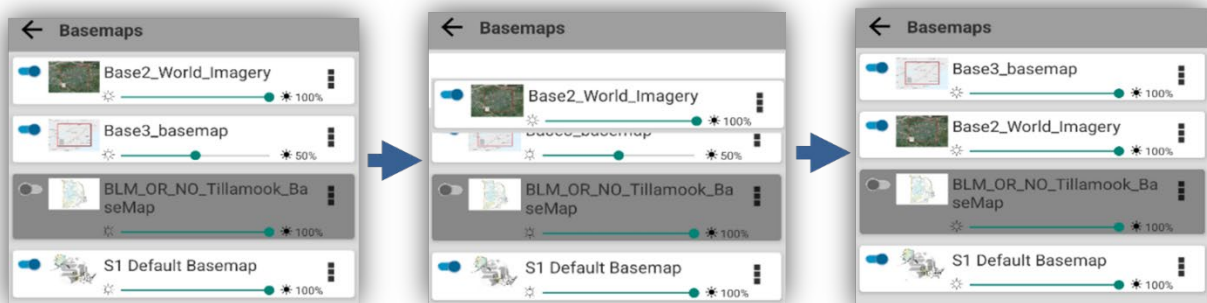
Manage Map Layers Button

- Tap on **Basemaps** (or the map image icon) to open the **Basemap** page. In the image below, there are four basemaps listed on the Basemap page; three User downloaded basemaps and one **S1 Default basemap**.



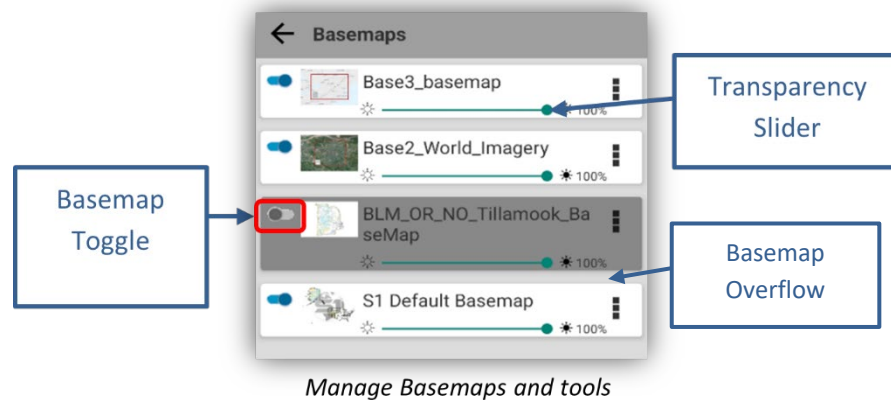
Basemap Page


- Basemap layers can be reordered by a long press and hold on a basemap layer tile and then drag that layer up or down in the list view.

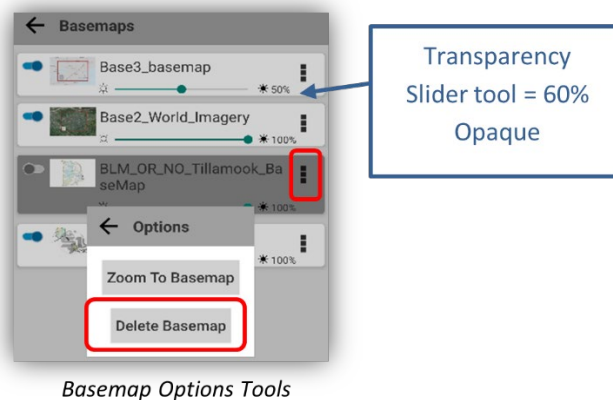


Rearrange Basemap Order

- The **basemaps are listed in the same drawing order as seen in the main map view**, meaning if a basemap is listed at the bottom, it will be drawn as the bottom layer when viewed in the map.



- On the Basemap page, there are basemap tools linked to each downloaded or sideloaded basemap:
 - Transparency Slider** allows the user to adjust the transparency of each individual basemap by moving the slider on the tile. ☀ 0% is fully transparent, 🌑 100% is fully opaque. See image above.
 - Toggle On/Off Switch** on the basemap layer. This toggle on/off switch controls whether the basemap is visible in the main map view. the basemap. See image above.
-  **Basemap overflow option** includes **Delete Basemap** or **Zoom to Basemap** (layer) Options for that selected basemap. Unlike toggle off, the delete will completely remove the basemap layer download from the device. **NOTE: S1 Default Basemap** can be turned off but **cannot be deleted**.

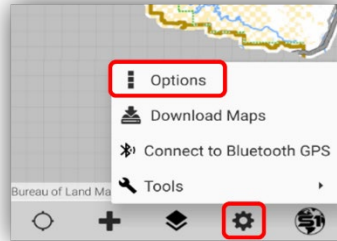


- Here are some examples of using the transparency tool with basemap layers:

S1 Application Options

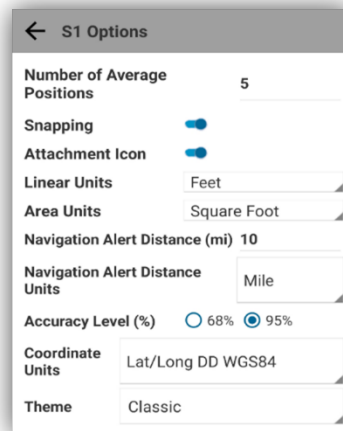
The S1 Options menu allows user to configure common settings across the application.

- Tap on **Tools/Options** button on the **Application Toolbar**.
- Select **Options**.



S1 Options on the Option/Tools List

- **S1 Options** setting window:



S1 Options Setting Window

- **Number of Average Positions:** Sets the default number of GPS positions that are collected to create an averaged point feature or averaged vertex of a line or area feature when using the Average GPS button.
- **Snapping:** Toggle on and off option to snap features. Default snap tolerance is set to 10m. User cannot change this setting.
- **Attachment Icon:** Toggle on and off visibility of the paperclip icon showing with the features in the map view.
- **Display Units:** Sets the display units of linear and area measurements throughout the app.
 - **For Linear units:** Distance may be displayed in either feet, miles, meters, or kilometers.
 - **For Area units:** Area may be displayed in square feet, acres, square meters, or hectares.
- **Navigation Alert Distance Units:** The user can set a different unit of measure for navigation alerts than the Linear Units setting (described above).
- **Accuracy Level:** Value displayed for the estimated accuracy on the GPS Position Toolbar. Can display either 68% (default) or 95% confidence interval. While most GPS receivers and data

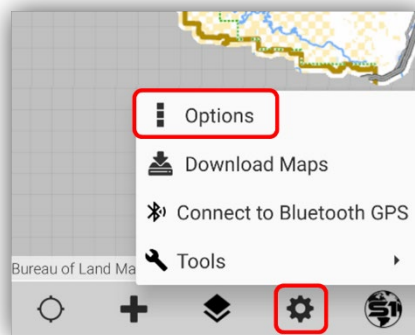
collection software display estimated accuracy statements only to a 50-68% confidence interval, the [National Standard for Spatial Data Accuracy](#) (NSSDA) requirements state reporting of estimated accuracy to a 95% confidence interval. This setting only affects the display value and not the actual estimated accuracy.

- **Coordinate Units:** The coordinate system displayed by the application **not the coordinate system to be used to collect data**. Impacts the format of XY values displayed on the GPS Toolbar as well as the XY information displayed in a selected feature information menu.
- **Theme:** The theme option allows the user to choose what application theme they wish to enable. There are three themes available: Classic (default), BLM and Forest Service. See the **Application Theme** section below for more info.

Application Themes

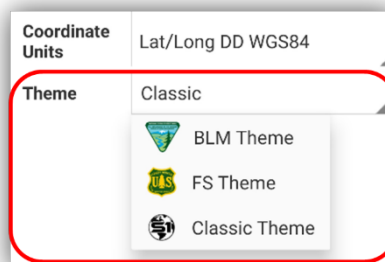
The Themes settings allows users to select from two agency specific themes, BLM or Forest Service, and the Classic View. The agency themes will apply a custom agency theme, applying different colors throughout the application. The classic view maintains the standard grey scale color theme.

- Tap on the **Tools/Options** button on the Application Toolbar.
- Select **Options** from the list.

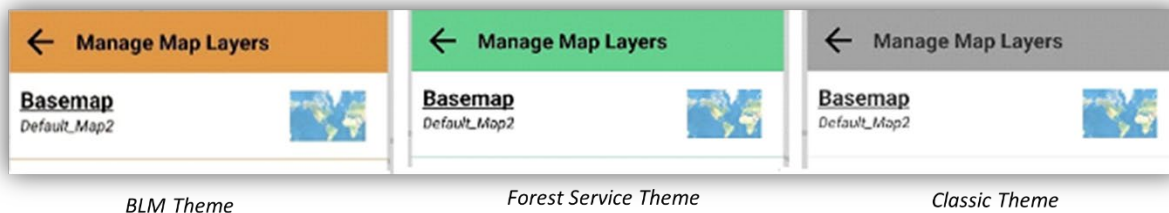


S1 Options on the Option/Tools List

- In the S1 Options, select the desired theme.



S1 Options Window- Theme List



- Applying a new theme requires the app to restart, once the user selects the theme above, you will be prompted with a pop-up window (toast) asking permission to restart the app. Tap **OK**.

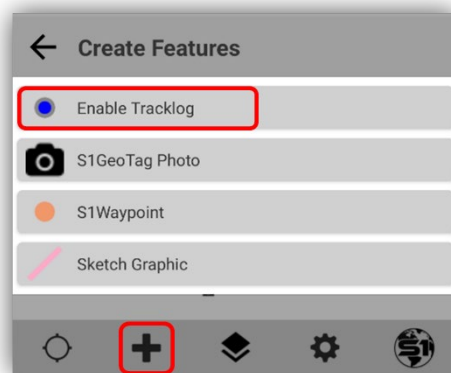
GPS Tracklog

A Tracklog includes a series of points that are logged automatically every 5 meters traveled. The Tracklog travel is logged continuously in the background for as long as the Tracklog feature is enabled. The same Tracklog can be turned on and off as needed, Tracklog labels can be toggled on or off and Tracklogs can be saved and archived to create a new separate Tracklog. Tracklog positions are stored as JSON files in the coordinate system WGS 1984 Web Mercator Auxiliary Sphere. Tracklogs files can be shared or exported into a GIS application using ArcGIS tools.

- GPS Tracklogs are visible at all scales.

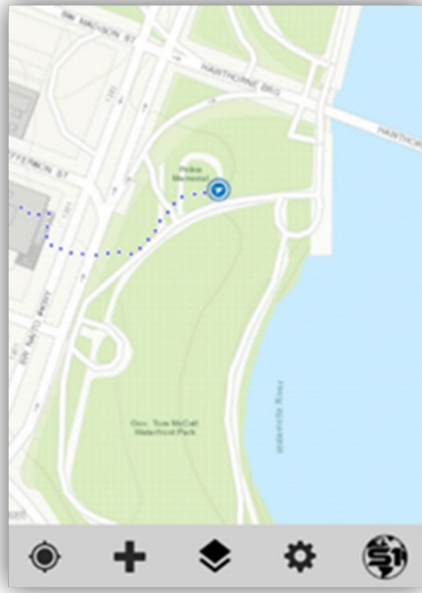
Enabling GPS Tracklog

- To enable GPS Tracklogs, tap the **Create Features** button on the Application toolbar.
- Choose **Enable Tracklog** from the menu.



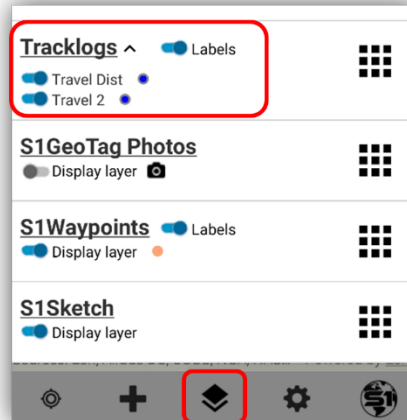
Enable Tracklog on the Create Features Menu

- The **Tracklog** will begin logging once the device has a GPS position, then it will start displaying on the map as you move. When enabled the tracklog will create a vertex every 5m. This is the default interval, and this setting is not accessible to change. The Tracklog appears as a series of blue dots.



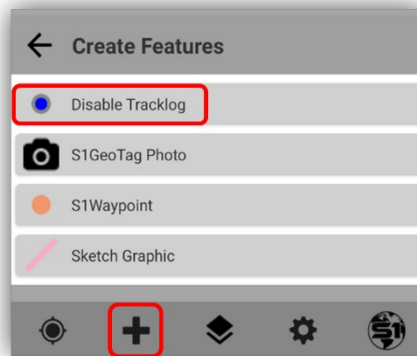
GPS Tracklog Displays on the Map View

- **Visibility of the Tracklog** in the map view can be toggled on and off just like S1 Waypoints, S1 GeoTagged photos, and S1 Sketches. **Tracklog labels** can also be toggled on and off just like for S1 Waypoints. By tapping on the chevron (▼) next to the Tracklog name in **Manage Map Layers**, it will list the tracklogs collected and archived. Each with their own toggle on and off switch.



GPS Tracklog Toggle Controls in Manage Map Layers

- Tap the toggle slider so it is no longer blue to **turn off Tracklog visibility** in the main map view. If the Tracklog is still enabled, it will continue to collect location information even if visibility is toggled off and will show up once Tracklog visibility is turned back on.
- To suspend capture of a Tracklog, tap on the **Create Features** button and select **Disable Tracklog**.



Disable Tracklog on the Create Feature Menu

Archive & Manage GPS Tracklogs

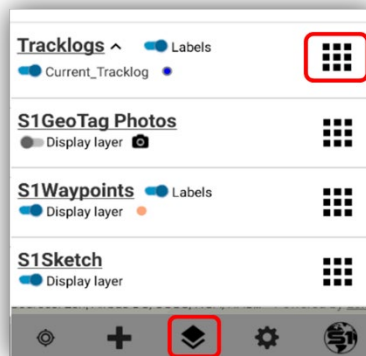
The Current Tracklog may be archived anytime, at which point the archived file is saved and given a unique name. Once a Tracklog has been archived, it can be renamed, exported from the device as JSON file into a GIS application and/or deleted. A JSON file can also be added as an item to ArcGIS Online.

Note: See more information about “What can you add to ArcGIS Online”

<https://doc.arcgis.com/en/arcgis-online/reference/supported-items.htm>

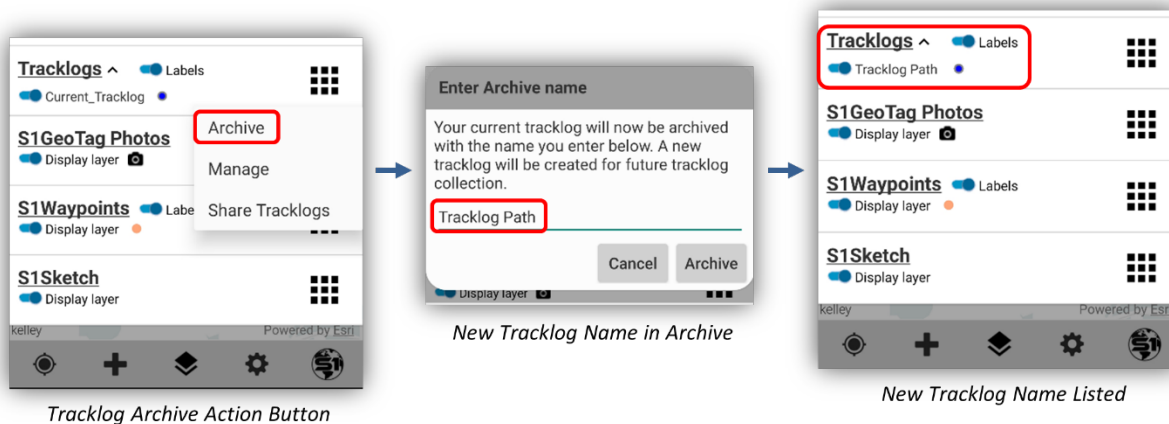
Archive Current Tracklog

- Click on the **Manage Map Layers** button and tap the **Action** button on the right-hand side of the Tracklog section.



Tracklog Action Button in Manage Map Layers

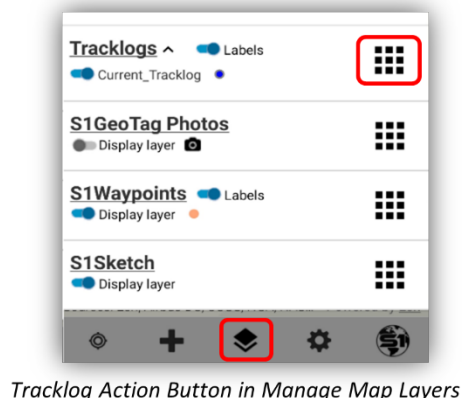
- Choose **Archive** from the menu of actions, give the file a descriptive name and then tap the Archive button.



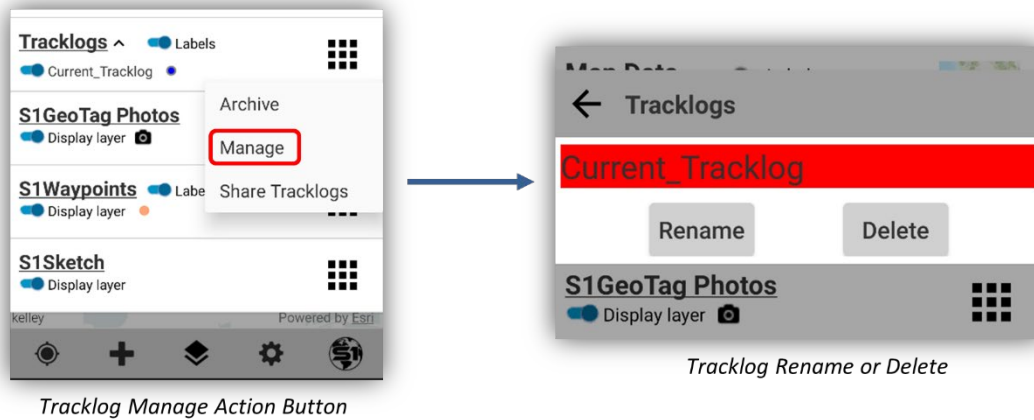
- The Tracklog is now archived on the device. It will be listed in Manage Map Layers, where its visibility can be toggled on or off. Both the **Current Tracklog** and any other archived Tracklog(s) may be displayed in the map view at the same time, however, only the current track can log new positions.

Rename and Delete Archived Tracklogs

- Click on the **Manage Map Layers** button and tap the **Action** button on the right-hand side of the Tracklog section.



- Choose **Manage** from the menu of available actions.
- Tap the Tracklog to select it (red), and then choose either **Rename** or **Delete**.

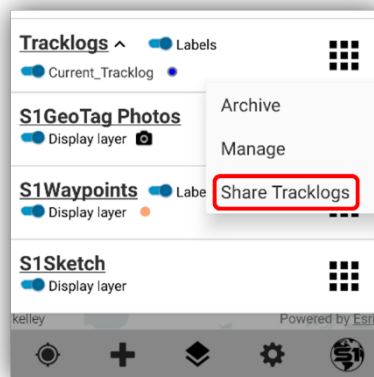


- A new Current Tracklog will be generated when the Tracklog capability is enabled again.

Share GPS Tracklogs

All Tracklogs are stored in a JSON file on the device and can be imported into a GIS application. Prior to importing to ArcGIS, the Tracklog file must be shared via the Share Tracklog option within the S1 Mobile Mapper app.

- Click on the **Manage Map Layers** button and tap the **Action** button on the right-hand side of the Tracklog section.
- Tap **Share Tracklogs** from the Action Button menu.



Tracklog Sharing on the Action Button Menu

- Tap the **app** to be used to **share** the Tracklogs. For example, share Tracklogs via email or upload the JSON file to OneDrive.

Note: The list of apps available to share the Tracklog file with will depend on the apps installed on the mobile device.

Assumed: The mobile device has a 4G or Wi-Fi data connection and ArcGIS 10.2 or later installed on a PC or Citrix to share Tracklogs.

Note: For Tracklog conversion and use; all tracklogs on the mobile device are stored in the same JSON file, so while the user can separate out naming and visibility of archived tracklogs on the device, if the

JSON file is shared and converted to a feature, the resulting feature is (1) continuous line. This means it essentially connects the dots of all exported tracklog features even if the user did not have tracklogs enabled. The trick to this is if you need a standalone tracklog file you know you will need to convert to a feature only collect that one tracklog you need, and archive and share it before you enable tracklogs again.

S1 GeoTag Photos

The S1 GeoTag Photo layer allows users to capture a photo with the location coordinates embedded into the photo's metadata (EXIF) header. Captured S1 GeoTag Photos are displayed as a camera icon in the map view. The photo may be watermarked with azimuth/bearing, pitch/roll, XY location, elevation, date/time, brand icon, and a configurable file name. Placement of these watermark elements in the camera view may be changed to where the user feels appropriate. Watermark settings are configured in the S1 GeoTag Photo Settings menu.

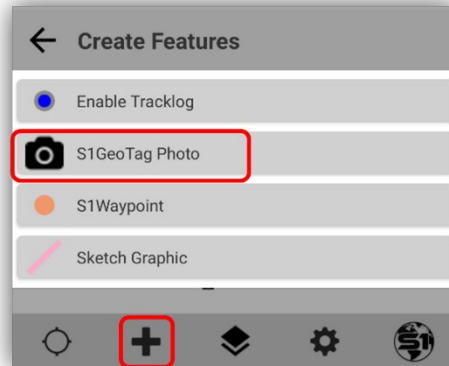
The location of the S1 GeoTag Photo being captured may be shared using the Share Location tool. This tool allows the user to share their location via the mobile device's mail app or text. If email is used to share the location, the recipient is provided with the information watermarked in the photo as well as links to maps available on the web.

The graphic below provides an overview of the tools and options available while taking S1 GeoTag photos.



Collecting S1 GeoTag Photos

- Tap the **Create Features** button on the Application toolbar.
- Tap **S1 GeoTag Photo** from the Create Features menu.



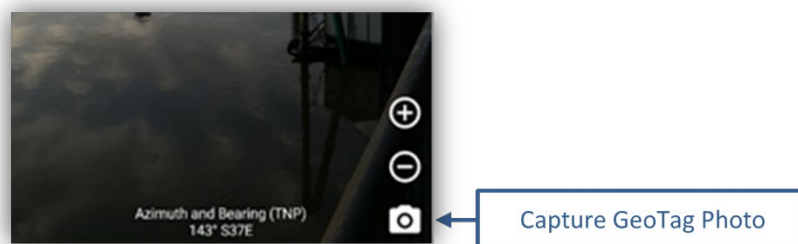
S1 GeoTag Photo on the Create Features Menu

- The **camera view opens**, and the **GPS is activated** if it was not already on.
- The **XY Coordinates** and **Elevation display** in the upper left corner once the GPS has a position.



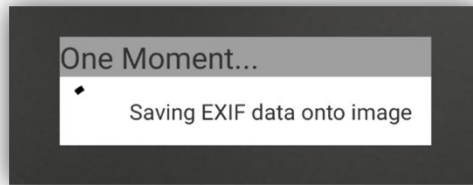
Display of XY Coordinates and Elevation

- Tap **Zoom In** or **Zoom Out** buttons, on the bottom right, to bring the subject of the photo in view or **pinch to zoom**.
- Tap **Capture S1 GeoTag Photo** button to take a GeoTagged photo at your GPS location.



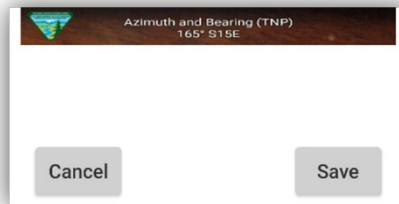
Zoom and Capture Buttons for S1 GeoTag Photo

- A message box appears showing the progress of capturing and then saving the photo.



Process of Saving an S1 GeoTag Photo

- Tap **Cancel** if you are not satisfied with the photo or **Save** to keep it.



Cancel or Save S1 GeoTag Photo

- When you tap **Save**, it will commit the GeoTag photo to the S1 Photos folder on the device.

Note: Photos will be stored in the S1 Photos folder on the device's internal memory if no SD Card is present, see more details in the Accessing and Viewing [S1 GeoTag Photos](#) section below.

- A S1 GeoTag Photo icon is displayed in the map view at the location of where the photo was captured.



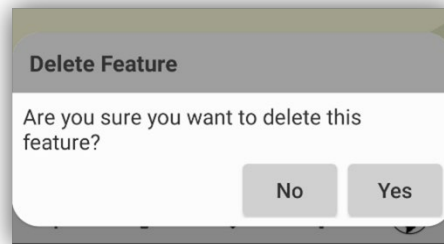
S1 GeoTag Photo Icon on the Map View

- To delete a single, S1 GeoTag photo, first tap on the **S1 GeoTag Photo icon** to select a photo.
- Tap the **Delete Feature** button to delete the selected photo.



Selected S1 GeoTag Photo Icon on Map View

- Tap **Yes** or **No** if you wish to delete the photo.



Delete Feature Pop-up Window

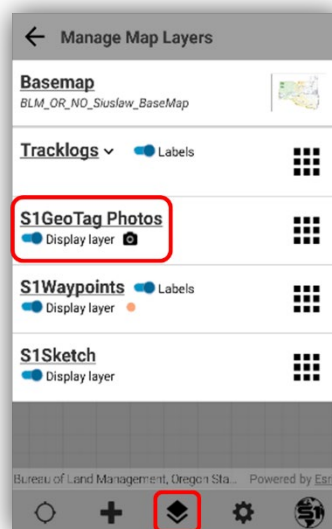
- Tap **Yes** if you wish to delete the photo from the map view and remove the thumbnail from Manage Map Layer (*photo is completely deleted from device*).

Note: You can use the **Navigation Capabilities** to navigate to a selected S1 GeoTag photo. See the [Navigation Capabilities](#) below.

S1 GeoTag Photo Layer Visibility

Visibility of S1 GeoTag Photos in the map view may be toggled ON or OFF in the Manage Map Layers.

- Tap the **Manage Map Layers** button on the Application toolbar.
- **Toggle** the S1 GeoTag Photo icon layer visibility ON or OFF.



S1 GeoTag Photo Toggle Switch

Configuring S1 GeoTag Photos Options

S1 GeoTag Photos are highly configurable. There are several settings and options available to the user.

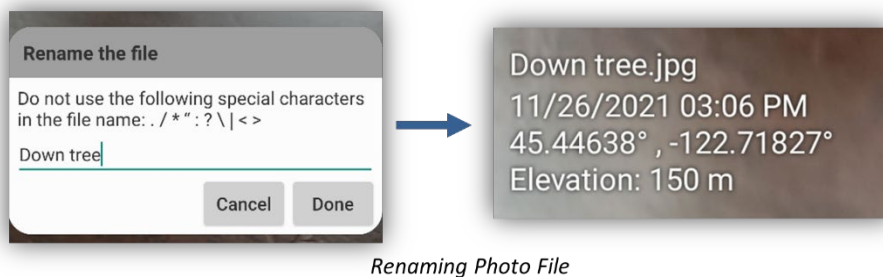
Settings are configured before a S1 GeoTag photo is captured.

- When capturing S1 GeoTag Photos via Create Feature button, then tap S1 GeoTag Photo; that's when you have access to the photo settings.



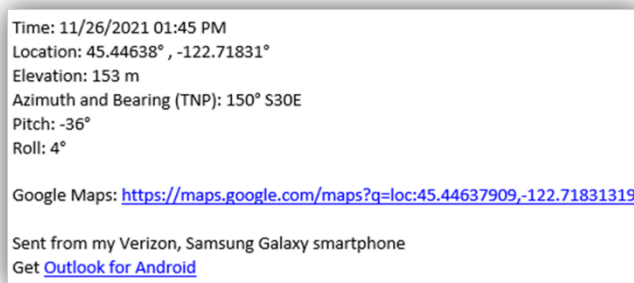
Configure File Name

- To **configure the file Name**, tap the **Rename File** button (see above). This allows the photo to be given a unique name that will be watermarked on the photo when the photo is stored.



Share Location

- The **Share Location** button allows users to share their location using various methods such as email, Google Maps, memo apps, and Bluetooth.
- Sharing your location by email provides the recipient with web links to Google Maps.



Sharing a Photo Location by Email

- Each web link provides a map at the location of where the photo was captured.

Photo Options

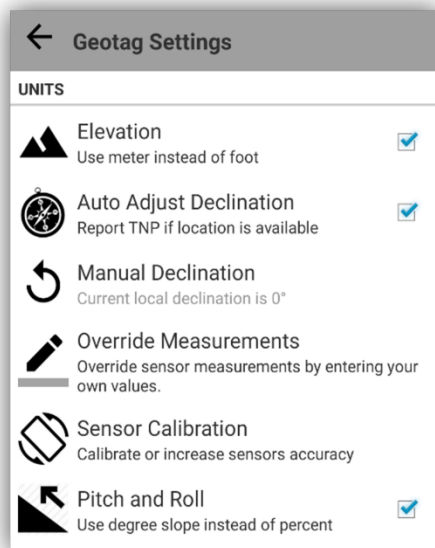
- From within the Photo viewfinder, tap the **Photo Settings** button to view the entire available photo setting options.



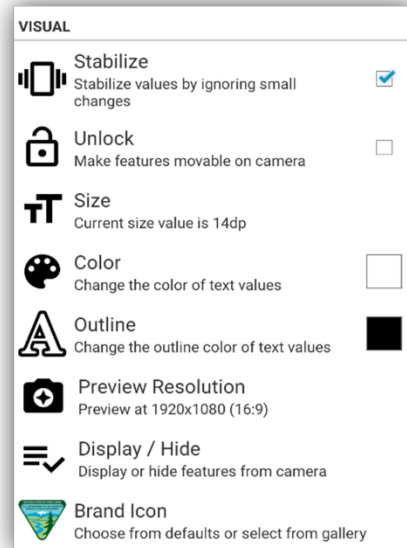
Cog Icon for Photo Settings

Full List of Photo Options

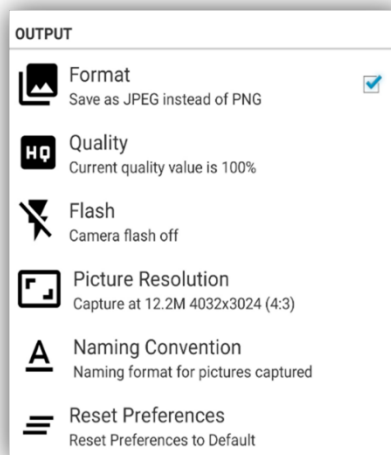
This section lists the options that allow the user to configure units of measure, visual interface, and output format of a photo.



Geotag Settings - Units



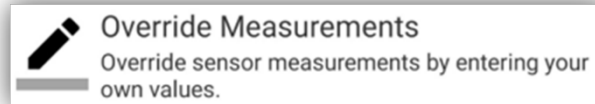
Geotag Settings - Visuals



Geotag Settings - Output

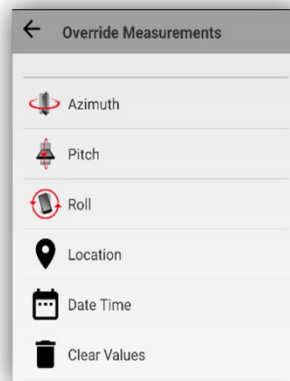
Override Measurements

- If the device does not have the necessary hardware sensors to calculate azimuth, bearing, pitch, roll, or if you wish to override sensor measurements, they can be manually entered by tapping the **Override Measurements** button; fourth option down in the Units section of the S1 GeoTag Settings.



Geotag Settings – Override Measurements

- Below is the menu for the **Sensor Measurements** that can be overridden as well as the option to clear values that have been entered. **Tap an option** from the list to open the values input window.

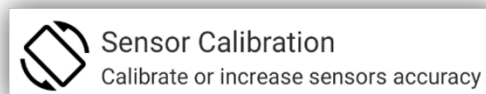


Override Measurements Options

- Check boxes that apply and tap **OK** to clear some or all the **Override Measurement values**.

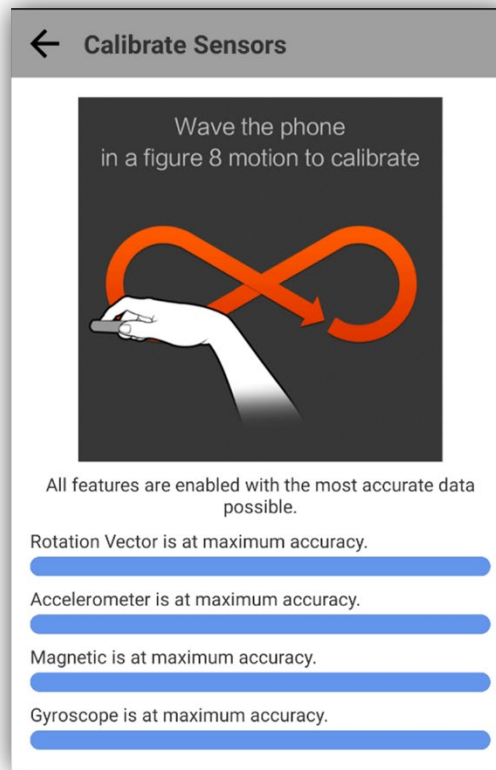
How to Calibrate Device Sensors

Sensors can be calibrated from **S1 GeoTag Settings** by tapping the **Sensor Calibration** button.



Sensor Calibration Tool

- Wave the phone in a figure eight motion as indicated by the graphic until all sensors are reporting full calibration, indicated by blue bar. Sensors that need calibration will appear with red bars; however, devices without certain sensors will always appear red no matter how many figure eights you complete.



Sensor Calibration Report Window

Managing S1 GeoTag Photos

There are several options for accessing and viewing collected S1 GeoTag Photos. The next section describes how to access, and view GeoTag Photos captured with the S1 Mobile Mapper.

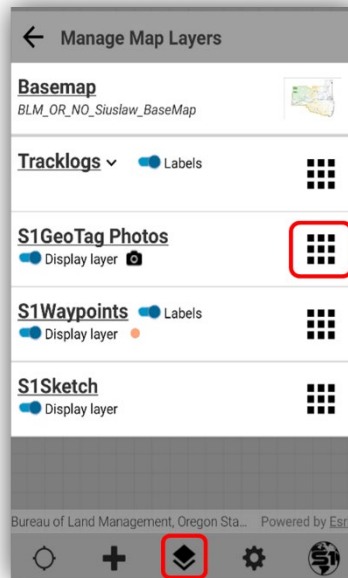
Assumptions:

- The user has collected at least one S1 GeoTag Photo with the S1 Mobile Mapper application. Capture of a GeoTag Photo initiates creation of the **Manage GeoTag Photo folder** described below.

Access S1 GeoTag Photos in Manage Map Layers

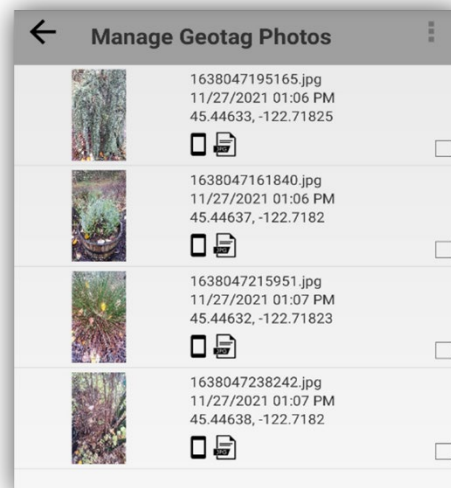
The **Manage GeoTag Photo menu** provides access to geotagged photos that have been captured with the S1 Mobile Mapper application. A user can sort photos based on name and date. Photos can also be deleted from the S1 Mobile Mapper application and device.

- Tap the **Manage Map Layers** button from the Application toolbar to **access S1 GeoTag Photos**.
- Tap the **Action** button to display the **Manage S1 GeoTag Photos** menu.



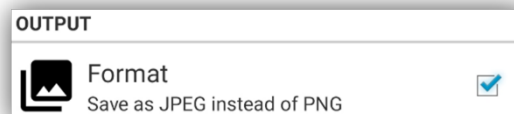
Manage Map Layers - S1 GeoTag Photos

- **Manage GeoTag Photos** menu is displayed.



Manage Geotag Photos Menu

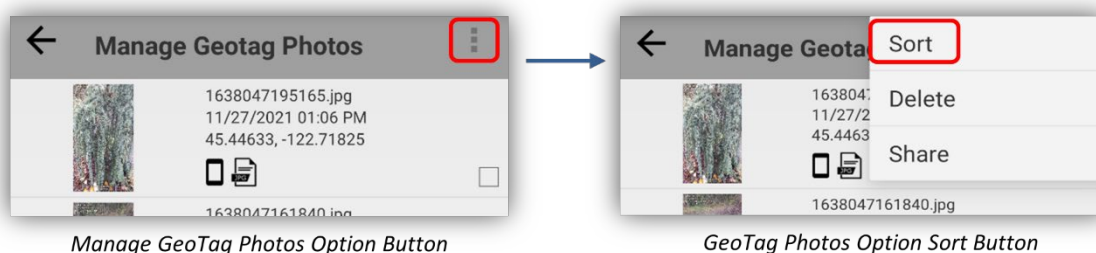
Note: A JPG or PNG icon is displayed next to the thumbnail depending on the photo format set in the GeoTag Photo Settings menu.



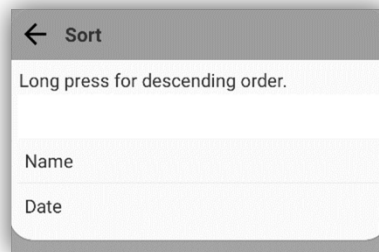
Change Photo Format in GeoTag Photo Settings

Sort GeoTag Photos:

- Tap **Manage GeoTag Photos Options** button and select **Sort**.



- Tap **Name** or **Date** to order photos.



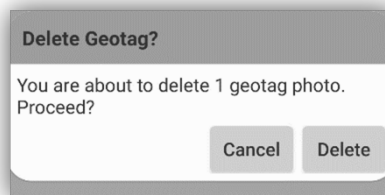
S1 GeoTag Photos Sort Menu

Delete GeoTag Photos:

- Tap the box to add a **Checkmark** next to the photo thumbnail(s) to be deleted.
- Tap **Manage GeoTag Photos Options** button and select **Delete**.



- Select **Delete** to delete the GeoTag photo(s) or **Cancel** to not delete the photo(s).



Delete or Cancel Delete Window

- Manage GeoTag Photos menu opens again after photos are deleted.

Note: Deleted GeoTag photos using this method in S1 Mobile Mapper are **“Not”** completely removed from the device only from the S1 Mobile Mapper interface. They will still be available in the S1 Mobile Mapper album in the device’s Native photo gallery app.

Access Photos in My Files Application

Below is the folder location where S1 GeoTag photos are stored on the device. Photos are stored on the device's SD Card if the external storage card exists, if not, photos will be stored on the device's internal memory.

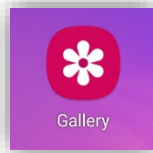
- **SD Card:** [Device Name]\Card\Android\data\gov.s1.s1mobile\Manage Geotag Photos
- **No SD Card:** [Device Name]\Internal storage\Android\data\gov.s1.s1mobile\Manage Geotag Photos
- The above file locations may be accessed on the mobile device via the **My Files** app. Tap the icon to open the **My Files** app and navigate to the appropriate location to find the S1 Mobile Mapper folder.
- **No SD Card, Android Mobile 10:** My Files\Internal storage\Pictures\S1 Mobile Mapper

Note: Android may not have the file locations available for access; version dependent.

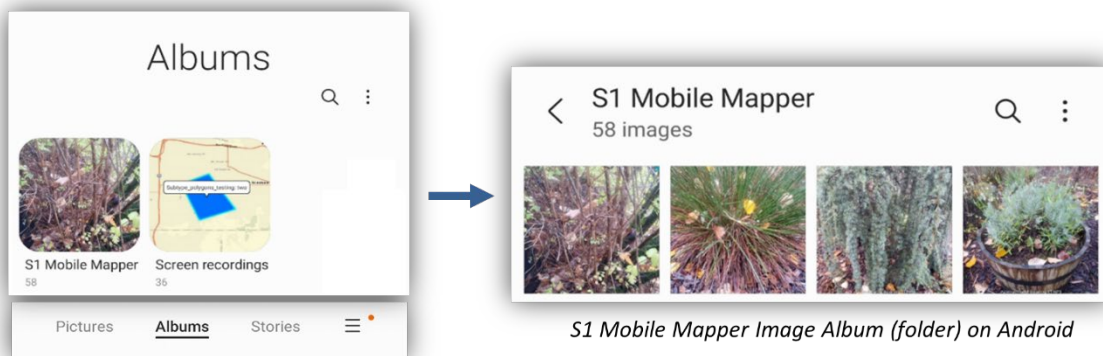
Access Photos in Mobile Device Gallery

Photos created via S1 Mobile Mapper are also saved in the device's Photo Gallery or a default photo-viewing app, depending on the device manufacturer.

- On the Home screen, tap the **Gallery** button.



- Tap **Albums**, then **S1 Mobile Mapper album** to access the S1 derived photos.
- Tap on the **Photo Thumbnail** to open the photo.



Copy GeoTag Photos from device to desktop computer

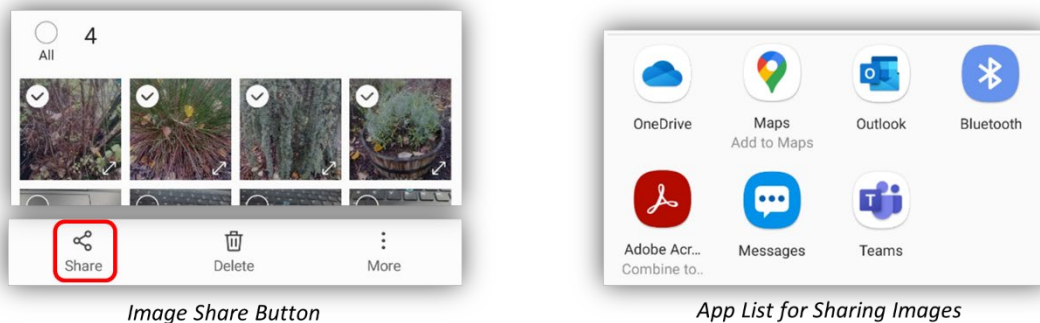
As shown in the above section, Access Photos in the Mobile Device Gallery, you can then copy those photos to the desktop computer.

- Tap the **Gallery** app on the Android device, tap the **Albums** option on the bottom of the window and then select the S1 Mobile Mapper folder to list the GeoTag Photos stored on the device.

- Tap the ellipsis in the upper right corner for the **image options list**. Then select **Edit**.

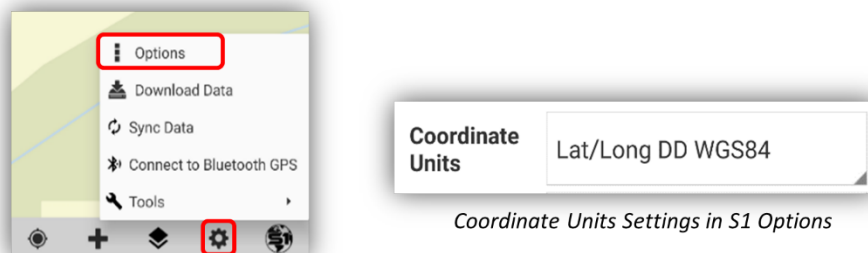


- Select the images you want to copy, then tap the **Share** option on the bottom left of the window. Choose which method to share the images. Once the images have been shared, they can then be saved to a file on the desktop computer.



- The image's info is stamped on the upper right corner and more on the bottom of the image.

Note: The coordinate system printed on the image is based on the *Coordinate Units* settings set in the **S1 Options** from the Application toolbar.



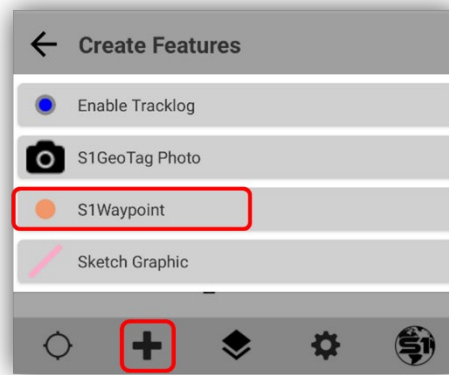
S1Waypoints

S1 Mobile Mapper allows users to capture simple point locations on the device using a layer called **S1 Waypoints**. The app will store the spatial location of the **S1 Waypoint** when the point is created. The user can add a **Name** and a **basic Description** to the provided fields in the **attribute table**. While there is

no substitute for collecting point features via map data, it is an easy way to capture a feature on the map. The S1 Waypoints use the WGS 1984 Web Mercator Auxiliary Sphere coordinate system.

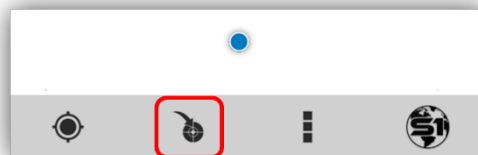
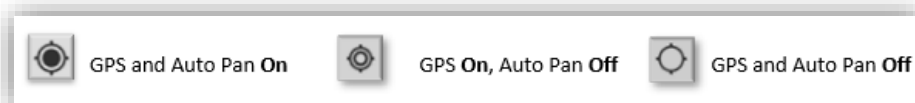
Collecting S1 Waypoints

- To collect an S1 Waypoint, tap the **Create Features** button on the Application toolbar.
- Choose **S1 Waypoints** from the menu.



S1 Waypoint on the Create Features Menu

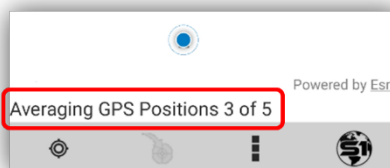
- A Waypoint location can be captured by digitizing (drawing) on the screen with **GPS Off** or using the **Average GPS function, with GPS On**.



Average GPS Function with GPS On

- If collecting S1 Waypoints with GPS On, then the **averaging status** appears at the bottom of the screen in the **Position Capture Status** bar.

Note: A feature is unable to be saved until all positions have been collected though you can populate the attributes prior to collecting all positions.



Average Status on the Position Capture Status Bar

- Select the **Attribute Table View** button to edit the attributes for the S1 Waypoint feature after adding the S1 Waypoint to the map view.
- The Name and Description fields are default fields for manual input values by the user.
- The Coordinate fields are automatically filled in values based on the placement of the S1 Waypoint on the map view. **The S1 Waypoint uses the WGS 1984 Web Mercator Auxiliary Sphere coordinate system.**

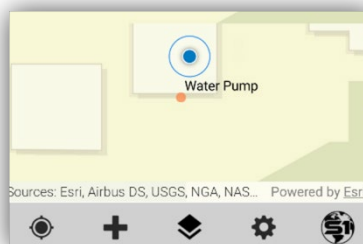
Attribute Table View of a S1 Waypoint

- Tap the Attribute Table View button again if you need to go back to the map view.
- Tap the **Submit Edit** button on the **Edit Mode toolbar** to save the geometry and attributes entered for the S1 Waypoint.



Submit Edit Button

- The S1 Waypoint location is recorded on the map as a salmon-colored dot. The S1 Waypoint can be selected, edited, or deleted.



S1 Waypoint with GPS On

Managing S1 Waypoint Data

The S1 Waypoint information is stored in a JSON file on the device and can be imported into GIS or into other file formats. The JSON file making up the S1 Waypoint may be shared via email, text, etc. To import

into desktop GIS software, the file must be shared onto a PC. A JSON file can also be added as an item to ArcGIS Online.

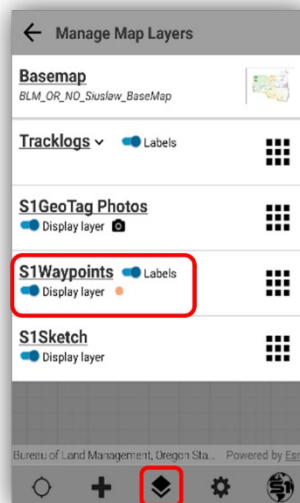
Note: See more information about “What can you add to ArcGIS Online”

<https://doc.arcgis.com/en/arcgis-online/reference/supported-items.htm>

Note: Most use cases with S1 Waypoints involve bringing the S1 waypoint file into ArcMap Desktop and converting it to a feature class for use in the desktop application, Please visit the S1 FAQ document for this process: <https://www.blm.gov/sites/blm.gov/files/s1-mobile-FAQs.pdf>

Assumptions: Mobile device has either 4G or higher or a Wi-Fi data connection and accessibility to ArcGIS 10.2 or later.

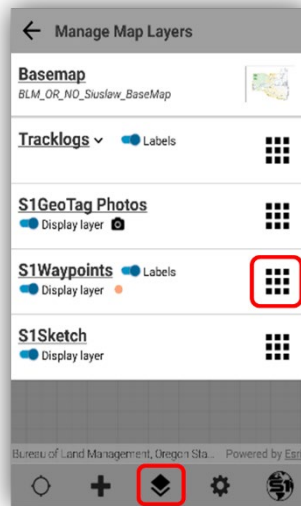
- Visibility of the S1 Waypoints layer, like all other layers in the map view, is controlled via **Manage Map Layers**. You can toggle on or off the **S1 Waypoints Display Layer and Labels**.



S1 Waypoints in Manage Map Layers

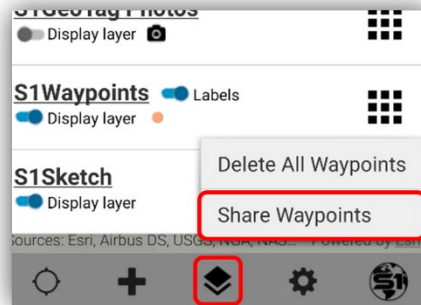
Share S1 Waypoints

- Tap the **Manage Map Layers** button on the Application toolbar.
- Tap the S1 **Waypoints** action button.



S1 Waypoints Action Button in Manage Map Layers

- Tap **Share Waypoints** in the pop-up menu.



Share Waypoints Button Pop-up Menu

- Tap the **app** to be used to **share** the S1 Waypoints. For example, share Waypoints via email or upload the JSON file to OneDrive.

Note: The list of apps available to share the S1 Waypoint file with will depend on the apps installed on the mobile device.

- The other action on the **S1 Waypoint action button, listed above**, will give you the option to **Delete All Waypoints**. This will remove all existing waypoints from the map view and delete them from the device.

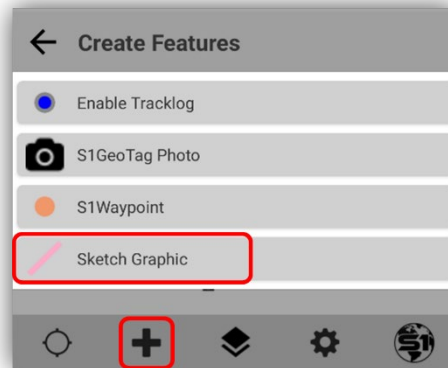
S1 Sketch (Sketch Graphic)

The S1 Sketch layer can create mark-ups on the map view. Sketches are drawn with a finger, or tablet stylus, by selecting the Sketch Graphic from Create Features menu and then drawing on the map view. Sketches are the topmost layer; they will draw on top of basemaps and other layers. A Sketch can be saved, deleted, loaded, and shared.

Note: Once the finger, or tablet stylus, has lifted from the mobile screen while sketching, that sketch is complete. To create more sketches, tap the Create Features button again to create another sketch.

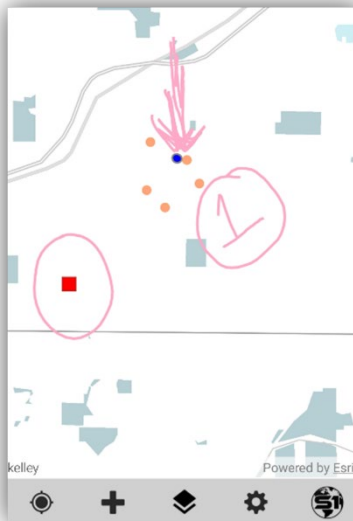
Creating an S1 Sketch

- To enable S1 Sketch, tap the **Create Features** button on the Application toolbar.
- Choose **Sketch Graphic** from the list.



Sketch Graphic on the Create Features Menu

- Hold finger down, or tablet stylus, on the map view screen to draw a sketch. Once the finger has lifted, the sketch is complete for that part.
- **If the screen starts to move**, the sketch has ended. You can add to your sketch by tapping the Sketch Graphic again from the Create Features menu.
- The S1 Sketch will draw as a light pink salmon color only. There are no other color options for the S1 Sketch currently. Below is an example of four added Sketches drawn over a basemap and other layers:



Four S1 Sketches Drawn Over Map Layers

Managing S1 Sketches

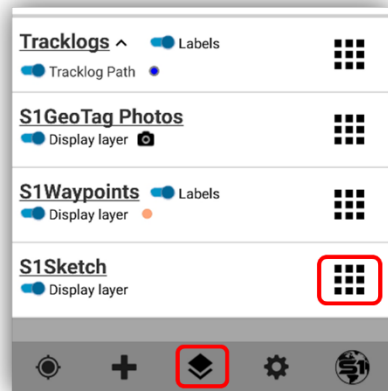
The S1 Sketch information is stored in a JSON file on the device and can be imported into a GIS application or to other file formats. The JSON file making up the S1 Sketch may be shared via email, text, etc. To import into desktop GIS software, the file must be shared onto a PC. A JSON file can also be added as an item to ArcGIS Online.

Note: See more information about “What can you add to ArcGIS Online”

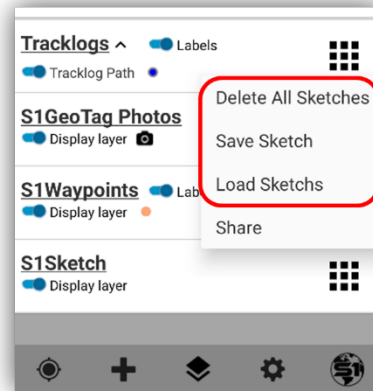
<https://doc.arcgis.com/en/arcgis-online/reference/supported-items.htm>

Save, Load & Delete S1 Sketches

Sketches are stored in a temporary memory storage and will disappear when you close the app unless you save them. If you save a single S1 Sketch or multiple S1 Sketches, they will all be stored in a single JSON file that can then be loaded up again when you want them. When you load an S1 Sketch, it will load all the saved sketches at once. The **Delete All Sketches** will delete all S1 Sketches on the map view and in the single JSON save folder.



S1 Sketch Button in Manage Map Layers

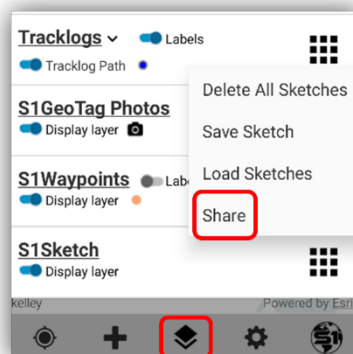


S1 Sketch Delete, Save & Load Options

Sharing S1 Sketches

All S1 Sketches are stored in a JSON file on the device and can be imported into a GIS application. Prior to importing to ArcGIS, the S1 Sketch file must be shared via the **Share Sketch** option within the S1 Mobile Mapper app.

- Click on the **Manage Map Layers** button on the Application toolbar and tap the **Action** button on the right-hand side of the S1 Sketch section.
- Tap **Share** (Sketch).



S1 Sketch Share Options

- Tap the **app** to be used to **share** the S1 Sketches. For example, share S1 Sketches via email or upload the JSON file to OneDrive.

Note: The list of apps available to share the S1 Sketch file with will depend on the apps installed on the mobile device.

Assumed: The mobile device has a 4G or Wi-Fi data connection and ArcGIS 10.2 or later installed on a PC or Citrix to share S1 Sketches.

Navigation Capabilities

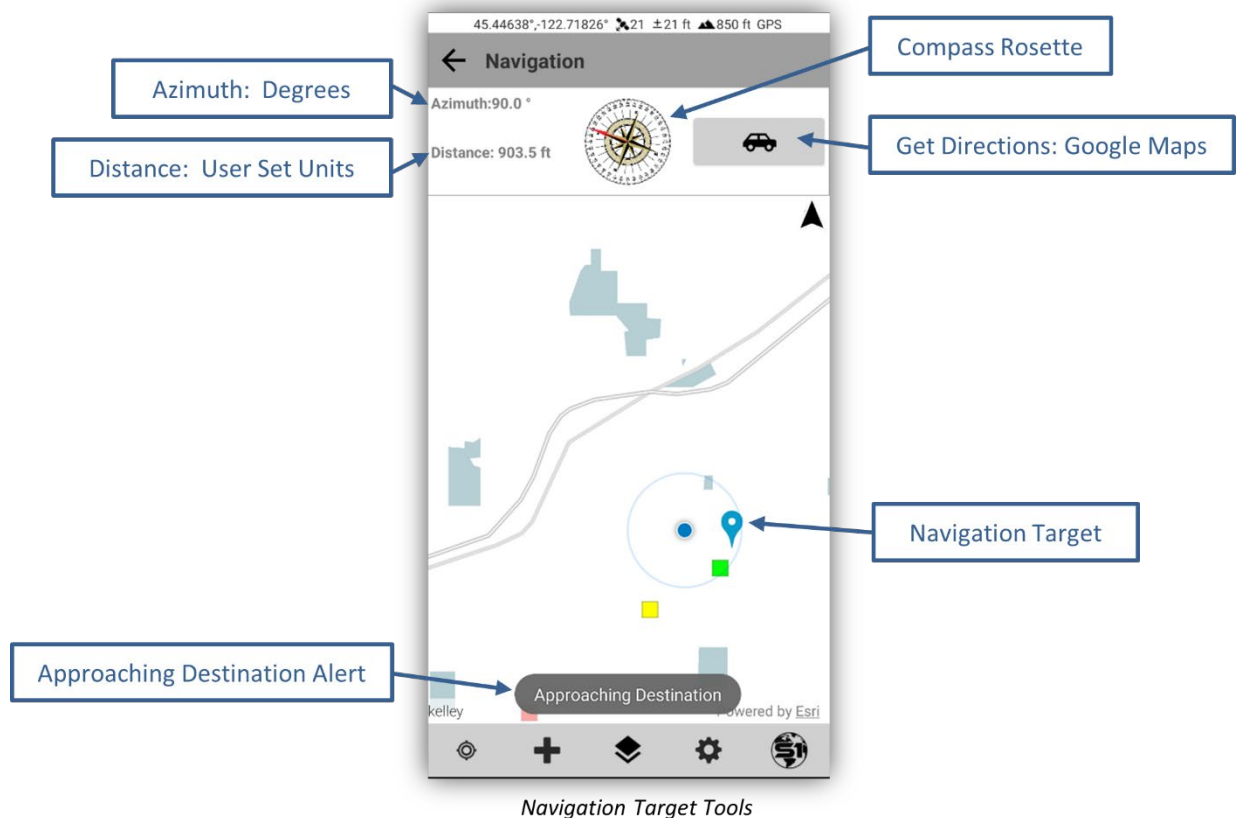
When the GPS has a position fix, users can **set a Navigation target** at a designated location in the map view or to a selected feature. While in **Navigation mode**, the application provides updated distance, direction and bearing information to the user (depending on device capabilities) and alerts the user when arriving near target destination.

Navigate to a Map Location

- **Long tap** on the map to set a **Navigation Target** (GPS will automatically activate if it is not already enabled).
- A **Blue Icon** is placed at the location of the Navigation Target.



- The **Navigation Pane** displays at the top of the map view. This pane provides the **Distance** and **Azimuth** (reference direction) to the Navigation Target and a **Compass Rosette** with an arrow pointing to the Navigation Target (if the device hardware supports the compass).
 - The Azimuth (reference direction) to the target is displayed in degrees.
 - The Distance value to the target is displayed in **user defined units that were setup in the [S1 Options](#) settings under Navigation Alert Distance and Navigation Alert Distance Units**.
- Distance and Azimuth values change as the GPS position moves in relation to the Navigation Target.
 - Distance value decreases when moving towards the target.
 - Distance value increases when moving away from the target.
 - Azimuth degree value changes as the GPS position moves.
- The application displays a message toast (little pop-up) at the bottom of the screen as the user approaches the Navigation Target. As the user reaches the alert threshold, the device will also ring or vibrate.



- **Tap the Back Button** to clear the Navigation Target.
- **Long tap** on the map to set a different Navigation Target.
- To view a full screen compass while navigating, **tap the Compass Rosette** on the **Navigation Pane**. A full screen window with the compass will appear.
- The **red arrow points** toward the direction of the Navigation Target relative to the orientation of the device.
- Tap the **Back Button** to return to the map view.



Navigation Target Compass

Navigate to a Selected Map Feature

Features on the map that can be selected and navigated to, include: A Tracklog, S1 Waypoint or an S1 GeoTag Photo.

- **Tap** on an existing feature in the map. The selected feature will highlight in **Blue**, and the **Select Mode Toolbar** will appear.
- Tap the **Navigate** button at the top of the screen.



Navigate Button for a Selected Feature

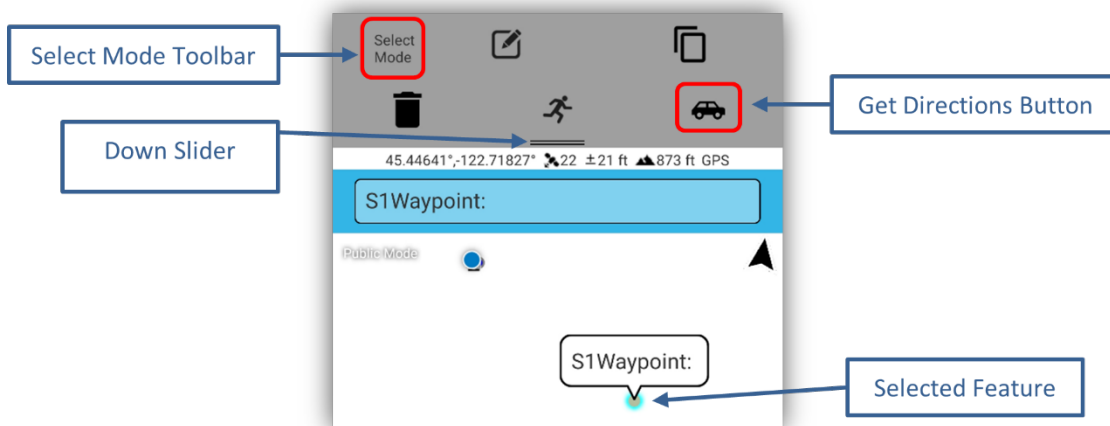
- For an S1 Waypoint or S1 GeoTag Photo – A blue pushpin will appear on top of the point. The **Navigation Pane** will appear at the top of the map view displaying the **Azimuth**, reference direction in degrees, and **Distance** to the selected feature.
- For a Tracklog Feature – A blue pushpin will appear at the starting vertex of the line. The **Navigation Pane** will appear at the top of the map view displaying the **Azimuth**, reference direction in degrees, and **Distance** to the selected feature.
- **Tap** the Back Button to clear the Navigation Target.

Get Directions

Users can get **directions to a selected feature or an X, Y location** via the **Enter Coordinates tool** using the **Get Directions function**. Users can launch the application and select a Map Routing application, like Google Maps, to get directions to the desired location. Users will need to initiate this function while they have a Wireless or 4G connection. See the Enter Coordinates section below on getting directions via the Enter Coordinates tool.

Get Directions to a selected location

- **Tap** on an existing feature in the map.
- Features on the map that can be selected and navigated to, include: A Tracklog, S1 Waypoint or an S1 GeoTag Photo.
- The selected feature is highlighted in **Blue**, and the **Select Mode Toolbar** appears.
- On the Select Mode Toolbar, use the **down slider** to access the **Get Directions button**.



Get Directions Button to Selected Feature

- **Google Maps** will open and load the selected location **displaying** the locations X, Y coordinates as a **red location pin** in the map view.



Google Maps with Location Pin and Directions

- Select **Directions** at the bottom of the screen to get a street route from your current location or a specific location to the selected feature.



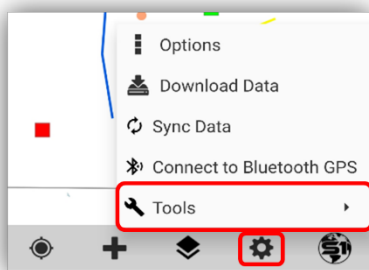
Google Maps Driving or Walking Map Route

Note: If going to areas where there are no data connections, the google map can be cached to the mobile device to allow turn-by-turn navigation when offline. User must first cache the map area they need by following the instructions here:

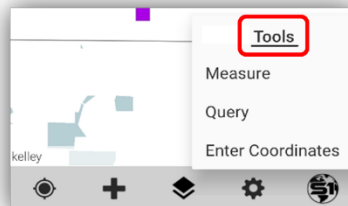
<https://support.google.com/maps/answer/6291838?co=GENIE.Platform%3DAndroid&hl=en>

Tools

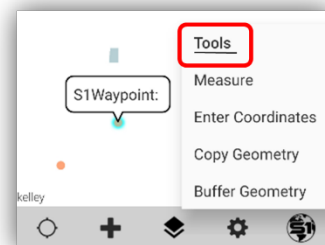
General application tools can be accessed via the **S1 Tools/Options** button on the Application toolbar. The list of Tools depends on if a feature is selected or not on the map view.



Tools Option on the Tools/Options Button List



Tools List Without Feature Selected



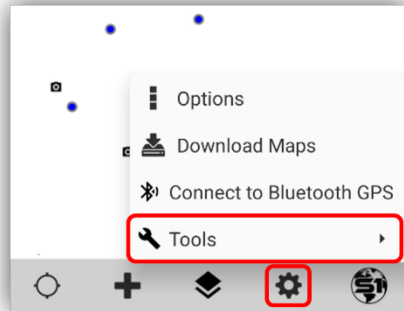
Tools List with Feature Selected

Measure Tool

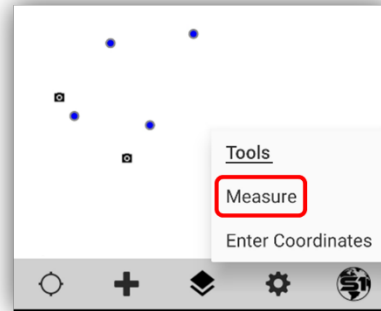
The measure tool provides the capability to **measure Distance and Area** by sketching in the map view from a selected point or taping any location and then selecting another location on the map to draw a distance line, more than three points to measure an area, or by selecting an existing Tracklog to see its measured length.

Measure Distance or Area in Map View

- To measure a distance or area in the map view, tap on the **Tools/Options** button on the Application Toolbar.
- Select **Tools** from the list.
- Select **Measure** to open tool.

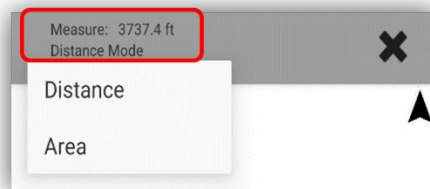


Tools Option on the Tools/Options Button



Measure Tool on the Tools List

- **Tap** on the screen where the measurement will begin.
- Continue to **tap** on the screen until satisfied with the measurement. The distance measurement is reported at the top of screen on the **Measure Toolbar**.
- Tap the **measure words** to get a pulldown list for Distance or an Area measure choice.



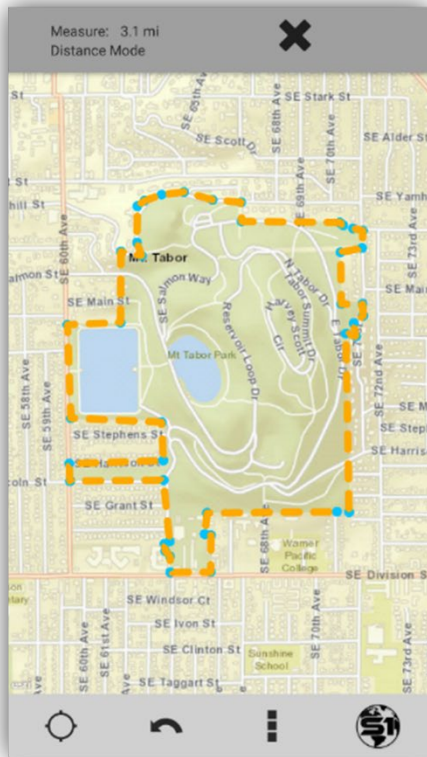
Measure Tool Units

- **Tap** on the **Undo Vertex** button to remove the last vertex in the sketch measurement if needed.



Undo Vertex Button

Distance Mode:



Area Mode:

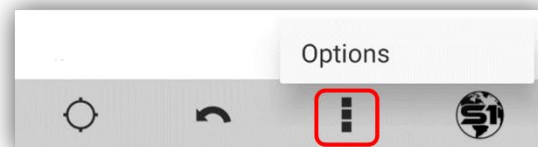


Measure Tool used in Distance Mode and Area Mode

- Display units can be changed based on user preference in the **S1 Options** menu.



Tools and Options on the Application Toolbar



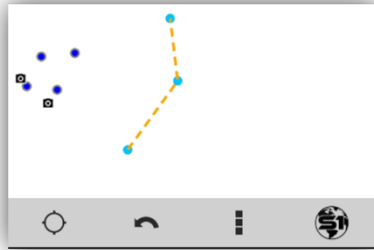
Options Button when using the Measure Tool

- **For the Linear units options:**
 - Distance is displayed in either feet, miles, meters, or kilometers.
- **For the Area units options:**
 - Area is displayed in square foot, acres, square meters, or hectares.
- **Tap on the Cancel button** to exit the Measure Tool, the **X** at the top on the Measure Toolbar.

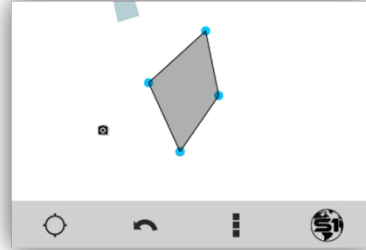
Determine Length or Area of a Selected Feature

If an S1 Waypoint or S1 GeoTag Photo is selected on the map view, then **measure Distance and Area** by sketching from the selected point and then selecting another location on the map to draw a distance line. Adding more than three points can measure an area or select an **existing Tracklog** to see its measured length. If an **S1 Waypoint or S1 GeoTag Photo is selected** on the map view, its X Y coordinates are reported in an **Info Window or labeled on the photo** (a Tracklog will not have reported X Y coordinates listed).

- Tap to select an S1 Waypoint, S1 GeoTag Photo or a Tracklog.
- Either feature type will be **highlighted in Blue** when selected.
- If you want to measure a distance from a selected S1 Waypoint or S1 GeoTag Photo to another point on the map, while in select mode (highlighted in blue) tap on another target location to get the distance to it. If taping more than twice in an area, then area can be measured.

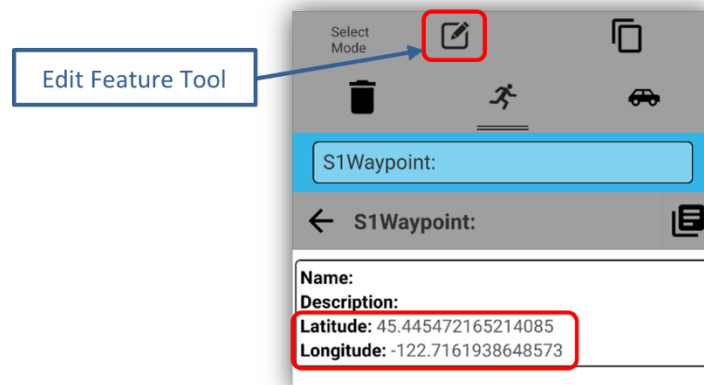


Measure Distance from a Selected S1 Waypoint



Measure Area from a Selected S1 Waypoint

- When a feature is selected there will be a blue **Select Features Bar** at the top of the map view, tap the feature name in the blue bar to open the feature's attribute info.
- If an S1 Waypoint or S1 GeoTag Photo is selected on the map view, its X Y coordinates are reported in an **Info Window or labeled on the photo** (a Tracklog will not have reported X Y coordinates listed).
- The Attributes can be edited for an S1 Waypoint, like Name and Description, by selecting the **Edit Feature tool**. Also see [Editing S1 Waypoint attributes](#) above.



Selected S1 Waypoint X Y Coordinates

Copy Geometry Tool

The Copy Geometry Tool only works with S1 Waypoints in Public Mode by copying the user added Name and Description attributes from a selected S1 Waypoints to a newly added S1 Waypoint.

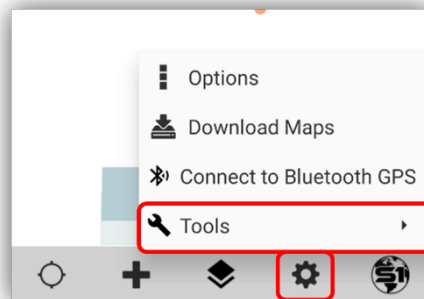
- Select a User added S1 Waypoint that you want to copy the name and description info from. The selected S1 Waypoint will be highlighted in blue.
- While the S1 Waypoint is selected, tap on the Tools/Options button on the Application toolbar, and then select the Tools button.

- Select the Copy Geometry Tool. The Create Features menu will pop-up for you to select a new S1 Waypoint (no other feature type from the Create Features menu will work with this tool).
- Then tap the map view to add the new S1 Waypoint to the map. If there is a name and description copied from the first S1 Waypoint, then it will be listed in the Attribute Table View for the new feature. Labels can be turned on in the [Manage Map Layers for S1 Waypoints](#).

Enter Coordinates Tool

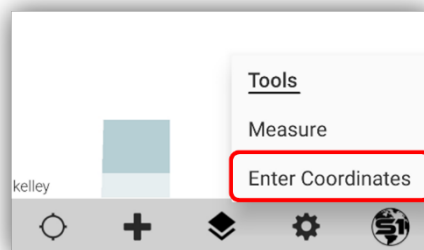
The **Enter Coordinates** tool provides the capability to specify coordinates that can be used as a Navigation Target, create a New Feature, or Find Existing Features at the coordinates specified. The user can Enter Coordinates in most of the standard latitude and longitude formats as well as BLM (UTM NAD83) and Forest Service (Albers NAD83) specific coordinate systems.

- To **Enter Coordinates**, tap on the **Tools/Options** button.
- Select **Tools** from the list.



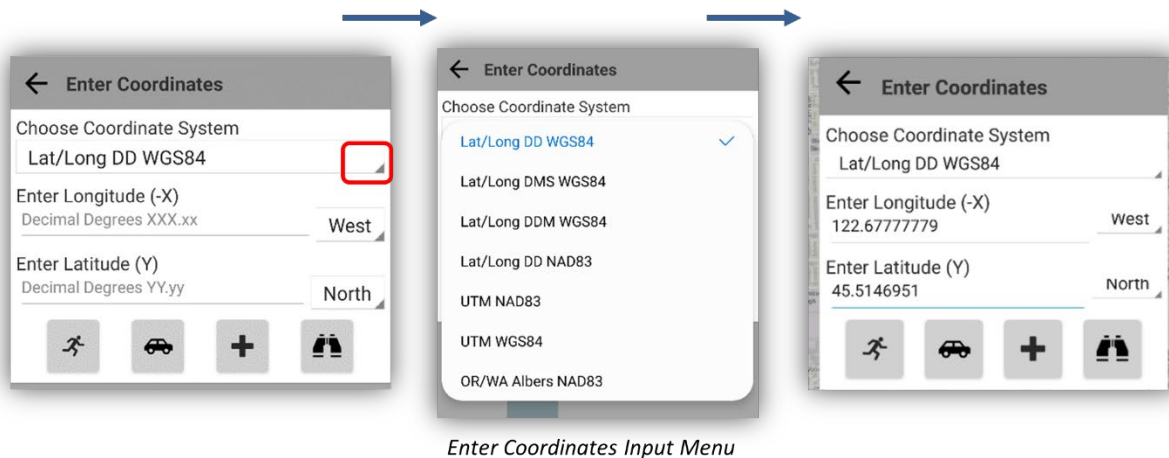
Tools and Options on the Application Toolbar

- Select **Enter Coordinates** to open tool.



Enter Coordinates on the Tools Menu

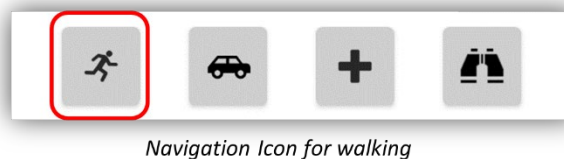
- Choose a Coordinate System from the dropdown list and then enter the X and Y coordinates for the appropriate Coordinate System selected.



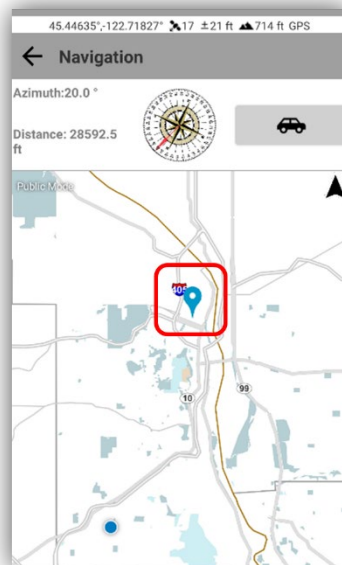
- After entering the coordinate information there are four options available for what to do with the specified coordinates; **Navigation**, **Get Directions**, **Create Feature**, and **Find Nearby Features**.

Navigate to Entered Coordinates

- Tap the **Navigation** icon once coordinates are entered.



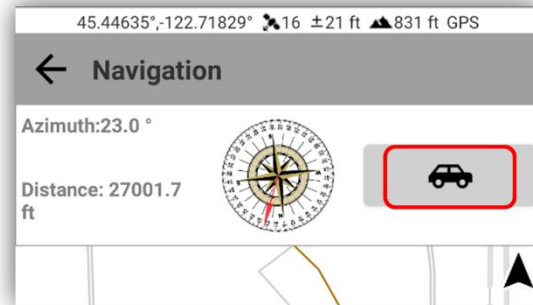
- This sets a **Navigation Target** at the desired coordinates and brings up a **bearing** and **distance window** with a **compass** and then acts in the same way as the [Navigation](#) section described above.



- Tap the **back** arrow button to remove the target and exit navigation mode.

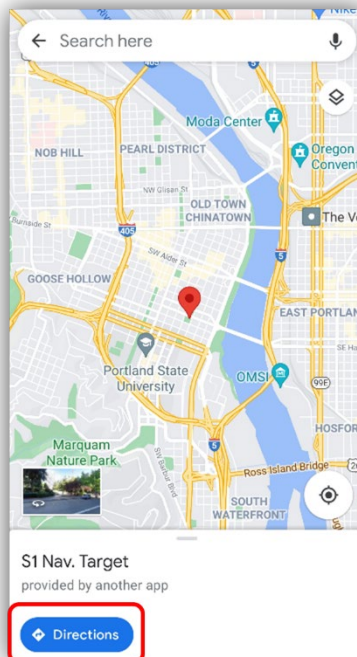
Get Directions to Entered Coordinates

- Tap the **Get Directions** icon once coordinates are entered.



Get Directions Tool

- The Google Maps app will open and drop a pin at the location specified.
- Select **Directions** at the bottom of the screen to get a street route to the map pin from your current location or another specified location.



Location Target on Google Maps

- Tap the **back button** on the device to return to the S1 Mobile Mapper application.
- To exit the Enter Coordinates tool, tap the device back button.

Create Feature Using Entered Coordinates

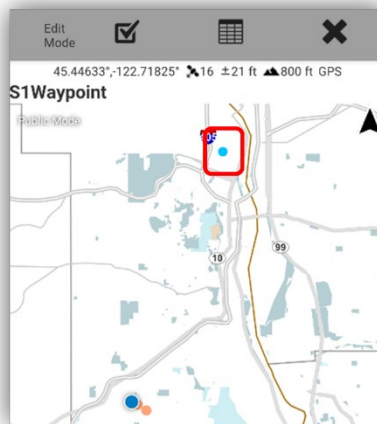
- After specifying coordinates, tap the **Create Feature** button.

Create Feature Button

- In the Create Features menu, tap the S1 Waypoint to add an S1 Waypoint at the Entered Coordinate location.

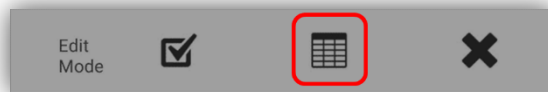
Selecting an S1 Waypoint at the Entered Coordinates

- The feature selected will be created and displayed on the map as a blue dot using the specified coordinates.



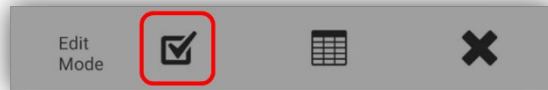
Creating an S1 Waypoint at the Entered Coordinates

- Select the **Attribute Table View** button to edit the name and description attributes for the new feature. The Coordinate attribute values will auto fill when the feature is submitted to be saved.



Attribute Table View Button

- Tap the **Submit Edit** button on the Edit Mode Toolbar to save the geometry and attributes entered.



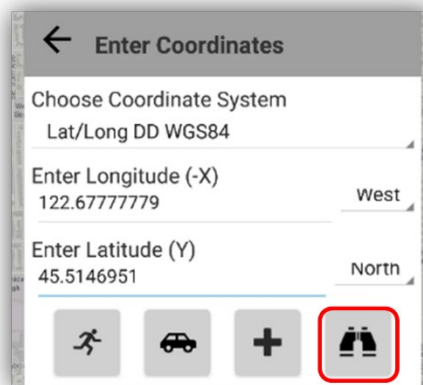
Submit Edit Button

- To exit without saving a feature created from coordinates, tap the **Back** button, or tap the screen outside of the active window.

Find Nearby Existing Features

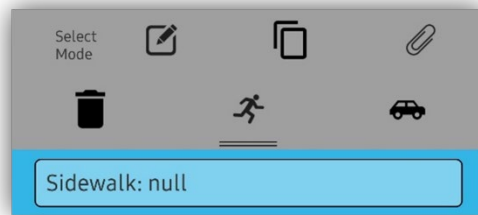
The **Find Nearby Features** tool will search for any existing features currently loaded in the map that are nearby the coordinates specified and within the current map zoom level. If the map is zoomed in, the search radius will be small; if the map is zoomed out, the search radius is larger.

- Specify coordinates in the Enter Coordinates menu.
- Tap the **Find Nearby Features** button.



Find Nearby Features via Enter Coordinate Tool

- If existing features are found, the **Select Mode toolbar** will pop-up and you can **edit or view** the feature as usual with the Select Mode toolbar.



Select Mode Toolbar from Find Nearby Features Tool

- To exit this option, tap the device's **back button** or within the **map window area** to close the select mode toolbar.

External Bluetooth GPS Receiver Support

The S1 Mobile Mapper application can also feed GPS measurements from supported external GPS receivers via Bluetooth to provide high accuracy location information to the application's map view. This may be desirable if the estimated accuracy of the device's internal GPS does not meet data accuracy requirements or if the Android device does not possess its own internal GPS receiver.

Generally, to use external receivers with Android devices, the following steps must be performed:

1. Turn on Bluetooth on Android device and on external receiver.
2. Pair external receiver with device via Bluetooth.
3. Enable Mock Location setting in Android Developer Options.
4. Activate external GPS within application.

S1 Mobile Mapper application supported external GPS receivers include:

- Trimble R1 Bluetooth receiver
- Trimble R2 Bluetooth receiver
- Juniper Systems Geode Bluetooth receiver

Other models may also function with the app, but steps to pair may be different from what is described in the user guide.

For detailed instruction on configuration settings and pairing each compatible Bluetooth receiver, refer to the External Bluetooth GPS Receiver Support section in the full **S1 Mobile Mapper Agency User Guide**.



For more information on the S1 Mobile Mapper application, visit:

<https://www.blm.gov/services/geospatial/mobile-GIS/s1mobile>

To submit applications bugs or app enhancement requests, use the online form at the URL below.

<https://forms.office.com/g/zmPkst3rjZ>

Service First Mobile GIS

U.S. Department of Interior, Bureau of Land Management, Oregon State Office