

Introduction to ArcGIS Field Maps

Tutorial Overview

ArcGIS Field Maps is a mobile solution with two components: the Field Maps mobile app that allows you to view and collect field data using an Android or iOS smartphone or tablet, and the Field Maps Designer web app that allows you to configure web maps for use in the mobile app. This tutorial will introduce you to the features of the Field Maps mobile app.

Skills

By completing this tutorial, you will become comfortable with the following skills:

- Exploring maps in the Field Maps mobile app.
- Using the tools in the Field Maps mobile app to add bookmarks and markup to maps.
- Optionally, using the Field Maps mobile app to track your location.

Time Required

The following classroom time is required to complete this tutorial:

- 30 minutes

Materials Required

Technology:

- ArcGIS Online organizational account.
- Smartphone or tablet running Android 8.0+ or iOS 14.5+ with the Field Maps mobile app installed.
- Optional: ArcGIS Location Sharing user type extension. Location sharing must be enabled in the ArcGIS Online organization and user type extension must be assigned to the account that will be used to sign in to Field Maps on the mobile device.

Data:

- Reference data and maps used in this tutorial are available in ArcGIS Online.

Production Date

The Education and Research Group at Esri Canada makes every effort to present accurate and reliable information. The Web sites and URLs used in this tutorial are from sources that were current at the time of production but are subject to change without notice to Esri Canada.

- Production Date: August 2021. Updated September 2024.

Background Information

The ArcGIS system has included multiple apps for mobile devices: ArcGIS Explorer, for viewing and marking up maps; ArcGIS Collector, [ArcGIS QuickCapture](#) and [ArcGIS Survey123](#) for data collection; [ArcGIS Workforce](#) and ArcGIS Tracker for managing and monitoring field workers; [ArcGIS Navigator](#), for finding optimal routes for navigating between destinations; and ArcGIS Companion, for managing your connection to the ArcGIS system. [ArcGIS Field Maps](#) was introduced in 2020, combining the features of the now-retired apps Explorer, Collector and Tracker in one app. Features from Workforce and Navigator have since been added to Fields Maps. No future enhancements are planned for Workforce, but Navigator will remain a separate app.

Explorer allowed users to access maps in the field, including by downloading maps that had been configured for offline use, and to add markup to maps. Although markup layers could be shared with others, Explorer was not intended for data collection. This ability to explore and markup maps is available in read-only maps in the Field Maps mobile app, as well as in maps that have editable layers. Fields Maps cannot be used without a web map but several maps are available to explore to users who aren't signed in. Additionally, maps that have been shared publicly or with the user through a group or their organization are available after signing in.

References and Reading

- ArcGIS Field Maps at a Glance
<https://resources.esri.ca/news-and-updates/arcgis-field-maps-at-a-glance>
- ArcGIS Field Maps Resources
<https://www.esri.com/en-us/arcgis/products/arcgis-field-maps/resources>
- Deprecation Notice for Explorer, Collector, and Tracker
<https://www.esri.com/arcgis-blog/products/collector/field-mobility/deprecation-notice-for-selected-field-apps/>
- The Future of ArcGIS Workforce and ArcGIS Navigator
<https://www.esri.com/arcgis-blog/products/field-maps/field-mobility/future-of-arcgis-workforce-and-arcgis-navigator/>
- Quick Reference for Android
<https://doc.arcgis.com/en/field-maps/android/help/quick-reference.htm>
- Quick Reference for iOS
<https://doc.arcgis.com/en/field-maps/ios/help/quick-reference.htm>
- Esri Video: ArcGIS Field Maps
<https://mediaspace.esri.com/channel/ArcGIS+Field+Maps/238781423/>

Part 1: Exploring an empty map in ArcGIS Field Maps

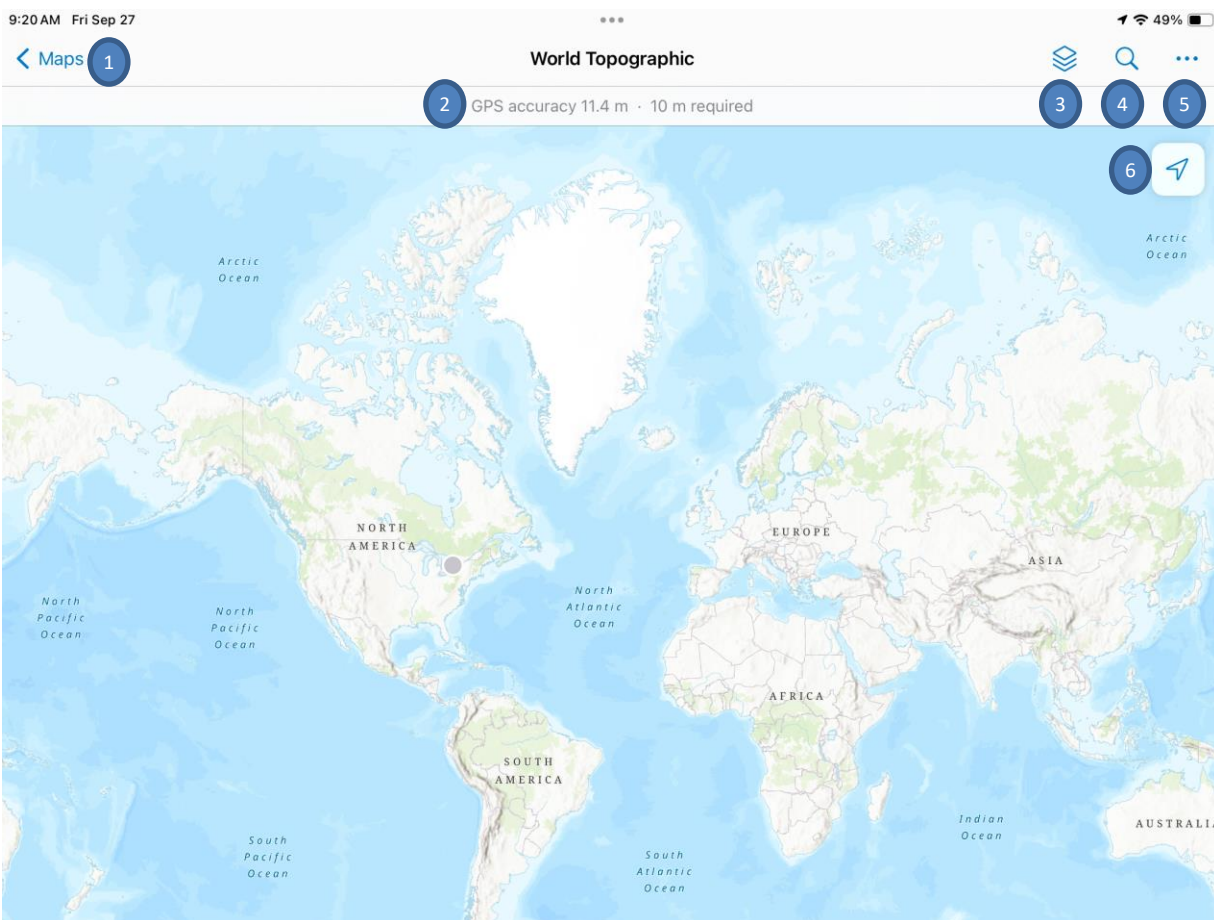
The Field Maps mobile app includes several maps to explore the functionality of the app without signing in. The Navigation Map does not have any layers but can be used to examine the basemap and bookmark places.

1. Open the ArcGIS Field Maps app on your mobile device. Tap **Skip Sign In**.

Note: If you've previously used the app without signing in, it might automatically load the last map you were looking at. Tap **< Maps** in the top left corner to return to the maps list.

2. Tap the **World Topographic** card to open the map.

The image below shows the World Topographic map on an iPad in landscape mode. The extent of the map, GPS accuracy and the location of the grey point will likely be different on your device. Other screenshots in this tutorial are from an iPhone. Note that the position and appearance of tools and buttons may be different on your device.





- | | |
|--------------------------------|----------------------------|
| 1. Back - return to maps list | 4. Search tool |
| 2. Current horizontal accuracy | 5. Overflow (⋮ on Android) |
| 3. Layers list | 6. GPS button |

3. Tap on **Overflow** (... on iOS, ⋮ on Android, #5 in the image above) to see the list of additional tools and select **Basemap**.
4. Scroll down to find the topographic basemap with the Esri Canada logo, **Topographic/Topographie**. Tap on the basemap card to select it, then close the **Basemap** selector.

This basemap has additional information about features in Canada and labels in both French and English.



5. Tap on the GPS button (iOS , Android ) at the top-right of the map (#6 in the image above) to zoom to your current location. Optionally, tap it a second time to activate the compass and rotate the map to show the direction you are facing.

6. Pan and zoom around your location to see what details are included in the basemap, e.g., building footprints, address numbers, parks and trails, etc.

7. Tap **Overflow** again and select **Measure**.

8. Tap on the GPS button to recentre the map at your location then tap the **Add Point** button in the Measure pane to start measuring at your current location.

Note: The point showing your location on the map may shift around as your device's GPS recalculates your position.

Positional accuracy will vary but is typically on the order of metres for mobile devices. If you require high accuracy positioning, you should use an [external GPS receiver connected to your device](#).

9. Drag the map to position the crosshair at a new point then tap Add Point to measure the distance from the starting point.

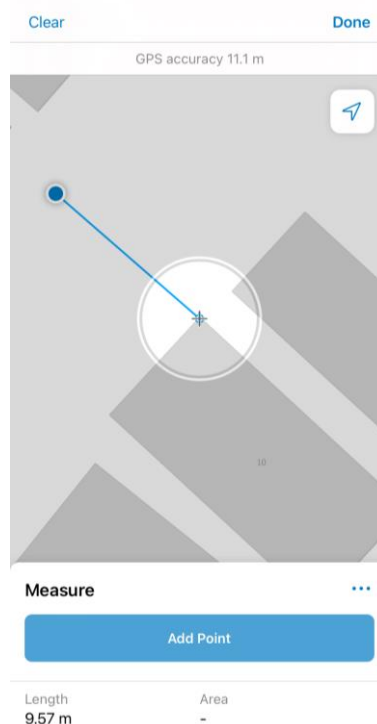
Measurements are displayed below the map on small screens, i.e., smartphones, and above the map on large screens, i.e., tablets. For linear measurements, the value displayed will be the total length of all line segments.

10. Try measuring distances to different features on the map and areas of features, e.g., building footprints. To measure an area, add at least three measurement points then position the crosshair at the starting point and tap **Close Area**. To remove the last point, tap on Overflow in the Measure pane then Undo. Tap clear to reset the measurement tool.
11. Tap **Done** to close the Measure tool.

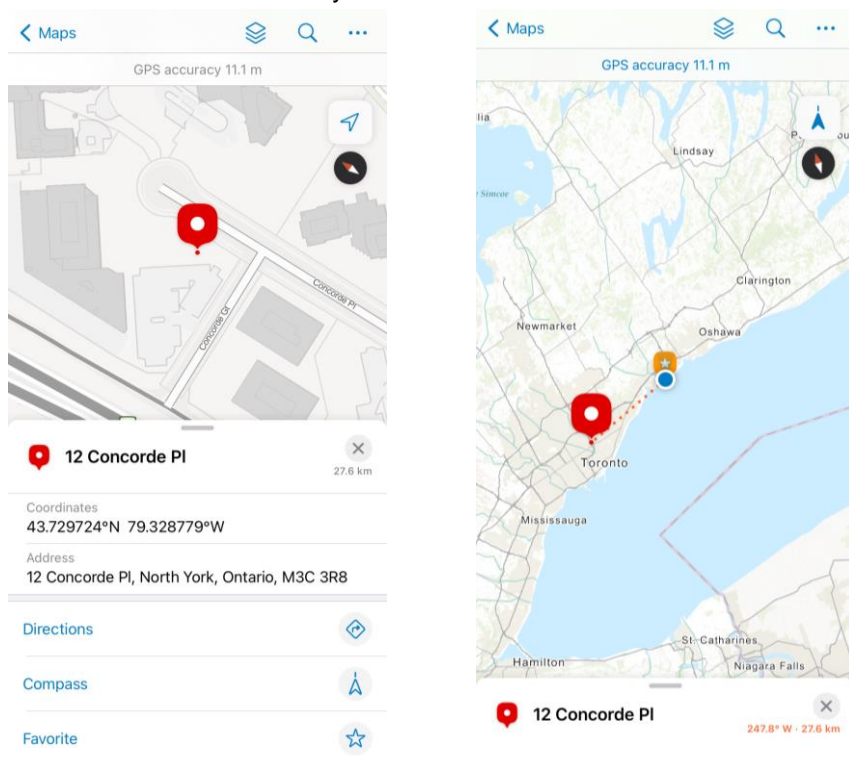
12. Tap the **Search** tool (#4 in the image on the previous page) and start entering your address in the search field. Tap one of the suggested address matches to select it, then tap on it in the Places list to zoom to the location.

13. Tap **Favorite**, enter a title for the place, then tap **OK** to add the location to your list of favourites.

Note: Places that you add as favourites are stored locally on the device and separately for each account. If you favourite a location when not signed in, they are stored under "Guest."




14. Tap **Search** again, enter a different address, then select and zoom to it. Tap **Compass** to see the straight line distance and direction from your current location to the selected location.



Part 2: Exploring a map with layers in ArcGIS Field Maps

The other maps in the app all use U.S. data to illustrate how different types of data will be displayed. However, a few of the layers in the Wildfire and Weather Information Map also cover Canada. In this section, you will first examine the data that are in your area and then interact with data from the U.S. Since the data are updated regularly, you will see different information every time you open the map. You will also see seasonal variations in the wildfire data, with a peak in the summer months and few or no incidents in the winter months.

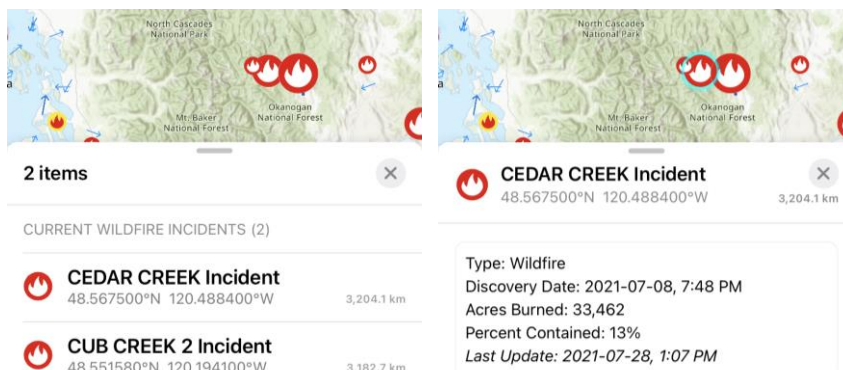
1. Return to the maps list. Tap **Overflow** (... on iOS,  on Android) for the **Wildfire and Weather Information** card and select **View Details**.

The details available for each map will vary depending on what information is included on the item details page in ArcGIS Online. At a minimum, Field Maps will display the map title, owner's username, date last modified, and whether it is a read-only map or if it has editing capabilities in the app. Additional information may include the item summary and description.

2. Read the description of the map to learn about some of its features. Tap **Done** to close the details panel.
3. Tap the **Wildfire and Weather Information** card to open the map.

- Zoom in on an area in the U.S. where there is current wildfire activity and explore the information that is provided about current wildfire incidents and current weather (wind speed and direction).
- Tap on an active incident. If there are multiple incidents close together, more than one item may be returned. Tap on one of the incidents in the list to see details about that incident.

When multiple items are returned from a search or by tapping on the map, the list will include coordinates for point features, total length for line features, and total area for polygon features. The title and details for each feature are the same as the contents of the pop-up window when viewing the map in ArcGIS Online.

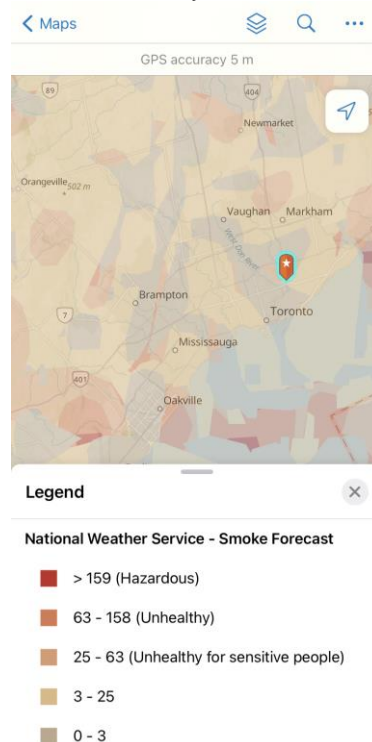


- Tap the **Layers** button (#3 in the image on Page 3) to see the list of layers in the map. Turn off all layers except for **National Weather Service – Smoke Forecast** then close the layers list.
- Tap **Search** and select the location that you added to your favourites in Part 1 to pan to that location and to see the smoke forecast for your area.
- Tap **Overflow** and select **Legend**. Use the legend to determine what the predicted level of smoke is for your area.

Note: The smoke forecast in the image to the left is for July 27, 2021. If there is no smoke currently forecast in your area, you can pan and zoom the map to examine the forecast in other areas.

- Turn on the **NOAA Weather and Wind Station Data – Stations** and **NOAA Weather and Wind Station Data – Buoys** layers to see wind speeds and direction in your area. Zoom in, if necessary, to see the labels on the wind station symbols. Use the size of the symbols and the labels to find the strongest current wind speed in your area.
- Turn off the **Smoke Forecast** layer and turn on the **NASA (VIIRS) Thermal Hotspots and Fire Activity** layer. Pan around the map to see if you can find any thermal hotspots that may indicate current fire activity.


The thermal hotspots layer is only visible at map scales larger than the State/Province scale, approximately 1:3,000,000, so it may be difficult to find thermal hotspots on a small screen



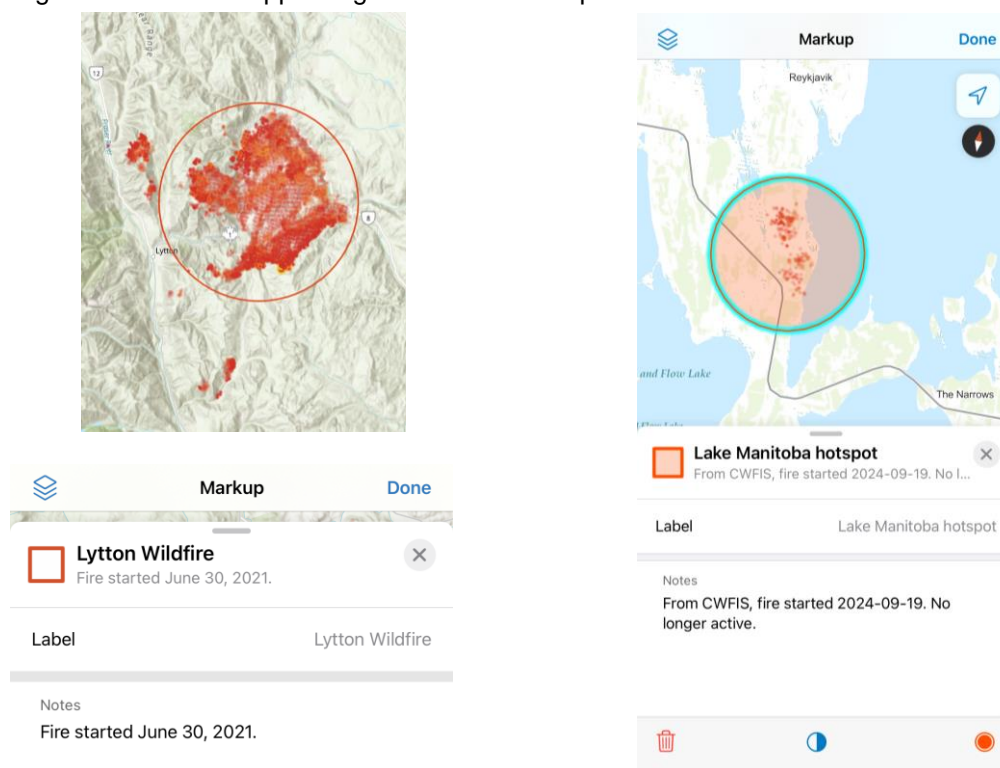
unless you already know where to look. You can open the map in ArcGIS Online on your device or your computer to use the Map Viewer navigation tools to help you search:

<https://www.arcgis.com/apps/mapviewer/index.html?webmap=11bca05c929e4a2a8a30279aa7614c7e>. You can also use the Canadian Wildland Fire Information System interactive map to locate active fires and Fire Monitoring, Mapping, and Modeling (Fire M3) hotspots in Canada <https://cwfis.cfs.nrcan.gc.ca/interactive-map>.

Thermal hotspots may also be detected in or near urban areas, potentially associated with industrial activities. If you are unable to find a hotspot that may be related to fire activity, you may choose any hotspot for the purposes of this tutorial.

11. Once you've located a hotspot, tap **Overflow** and select **Markup**.
12. Draw a line around the hotspot. If the shape you draw is approximately circular, you'll see an option at the top of the shape to convert your scribble to a circle.
13. Slide the **Markup** panel up to add a label to the area and any notes. Tap the fill button  in the Markup toolbar to add a semi-transparent fill to the shape.

The image below on the left was captured in July 2021 and represents a fire that was active at the time. The image on the right was captured in September 2024 and represents a fire that was no longer active but still appearing as a thermal hotspot.




14. Tap **Done** to close the **Markup** tool.

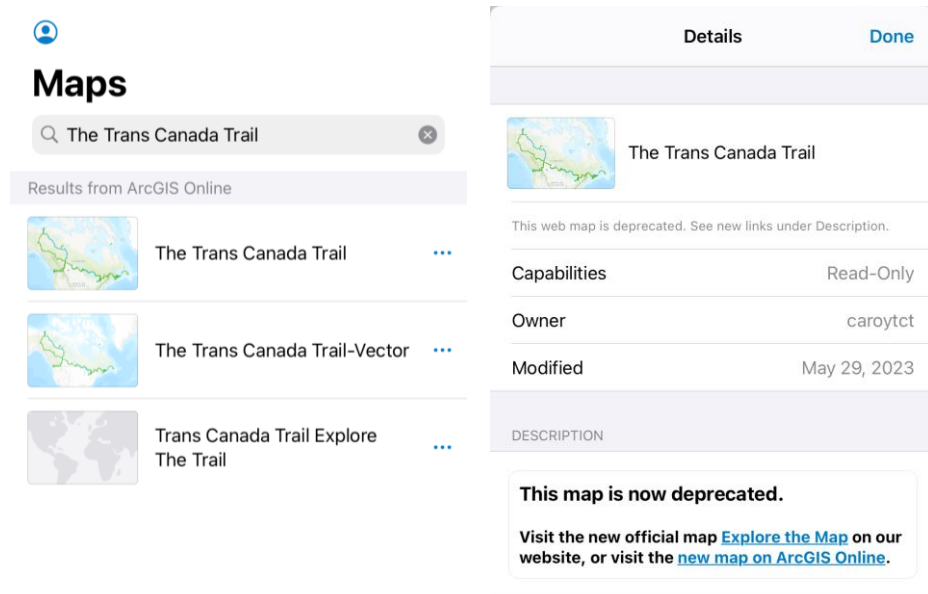
The Markup layer is stored locally on your device but unlike Favorites it is not associated with an account. Regardless of whether or not you are signed in, you are able to access the points and areas you have previously drawn in any map you open in the Field Maps app.



Part 3: Exploring a map from ArcGIS Online in ArcGIS Field Maps

Any maps that you have created, that are shared within your ArcGIS Online organization or a group you belong to, or that are public can be viewed in the Field Maps app, provided the map owner hasn't chosen to hide them in Field Maps. You can access them by signing in to your ArcGIS Online account.



1. Return to the maps list. Tap the **Profile** button  at the top of the screen.
2. Tap **Sign In** and sign in to your ArcGIS Online account.
3. Enter **The Trans Canada Trail** in the search field.

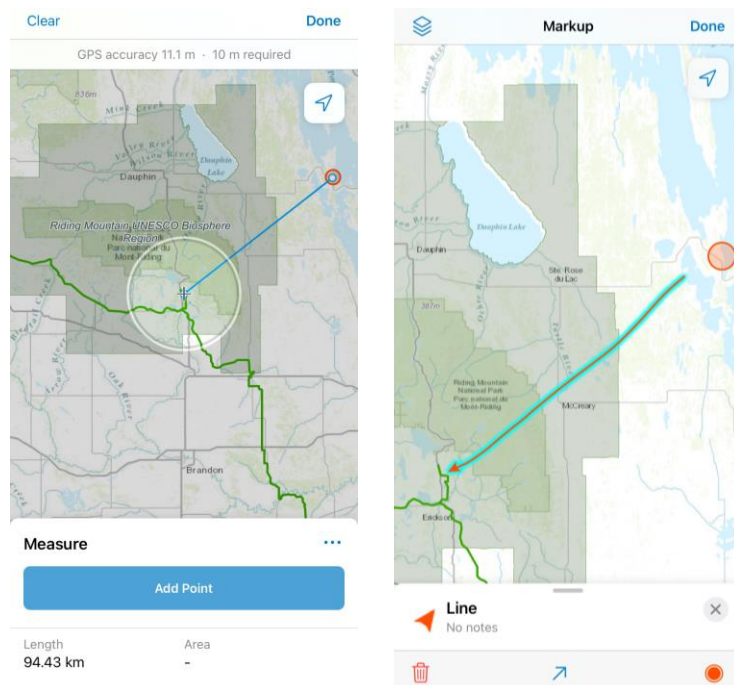
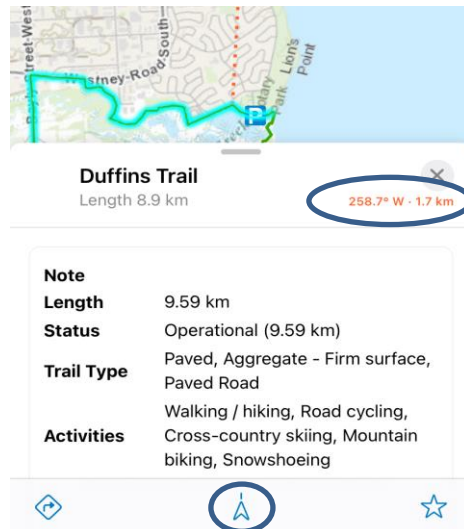
There are many maps of the Trans Canada Trail in ArcGIS Online but not all of them are compatible with the Field Maps app or are from authoritative sources. View the details of each map to find the one owned by username *caroytct*. Although this map has been deprecated, the new official maps are not available in Field Maps. The deprecated map will be used for the purposes of this tutorial but in general you would not use content that has been deprecated.



4. Tap **Overflow** for **The Trans Canada Trail** card, then **Favorite**. Tap the card to open the map.
5. Tap the GPS button (iOS , Android ) to zoom to your location, then zoom out until part of the trail is visible.

Note: Although the trail passes through all ten provinces and two of the territories, there may not be a segment in proximity to your current location. You may need to zoom out significantly before you see the trail appear on your screen.



6. Tap on a section of the trail to see information about that section then tap on the compass button (iOS , Android ) in the information panel toolbar to see the heading and distance from your current location to the nearest point on the trail.
7. Open the **Layers** list and check that the **Markup** layer is turned on.
8. Pan the map to the hotspot you marked in the previous section or tap on the Markup layer in the Layers list to zoom to it. Pan and zoom the map as needed until you have both the hotspot and part of trail visible on your screen.
9. Use the **Measure** tool to measure the approximate distance between the hotspot and the trail. Close the Measure tool.
10. Open the **Markup** tool. While it's open, be careful not to touch the hotspot markup or you might accidentally shift its position. Draw a line from (near) the hotspot to the trail. Tap the arrow button in the **Markup** toolbar to add an arrow to the end of the line.



11. Tap the **x** in the **Markup** panel to stop editing the line.
12. iOS: Tap the share button in the **Markup** toolbar and select **Markup Layer**. Android: Tap **Overflow** in the Markup toolbar, select **Share**, then **Share Markup**.
13. Tap **ArcGIS Online** (iOS) or **Share to ArcGIS Online** (Android).

Note: If you are signed in to a public account, rather than an organizational account (i.e., an account from your school), you will not see the option to share to ArcGIS Online but you can still share your markup as a *.markup* file.

14. Provide a name for your markup layer, e.g., Potential fire activity near TCT on <date>, optionally share it with your organization, the public, and/or any ArcGIS Online groups you belong to, and tap **Save** (iOS) or **Done** (Android).
15. Tap **Done** to close the Markup tool.
16. Optionally, open ArcGIS Online in a browser, sign in to your account, and check that your markup layer was successfully shared.

Title		Modified	
<input type="checkbox"/> Potential fire activity near TCT September 2024	 Markup	Sep 27, 2024	

Part 4: (Optional) Using ArcGIS Field Maps to Track Your Location

The Field Maps app includes a location tracking function that can record your location while the app is open, either while you are using it or while it is running in the background. It requires an account with an ArcGIS Location Sharing user type extension in an ArcGIS Online organization where the administrators have enabled location sharing. You will also need to allow Field Maps to access your location

Warning: You should always be mindful of what personal information, including location, you are allowing an app or website to collect and potentially share with others on the Internet. Tracks recorded with Field Maps cannot be accessed directly in ArcGIS Online, but anyone with an administrator role in the organization can view users' tracks in the Track Viewer web app.

1. Return to the maps list. If you see a **My Tracks** card in the list and it says *Location Sharing Off*, your account has been assigned the Location Sharing user type extension and location sharing has been enabled in your ArcGIS Online organization. You will be able to track your location in Field Maps.

If you do not see a My Tracks card, you do not have the Location Sharing user type extension. If the card says *Sharing is Unavailable* and the toggle is disabled, you have the user type extension but location sharing has not been enabled in the organization. You will need to contact the administrator for your ArcGIS Online organization to find out if they can enable you to track your location.



Location tracking has not been enabled in organization.



Location tracking has been enabled in organization.

- Go out to the area where you'd like to track your location. Turn on your device and open the Field Maps app.

- Tap the toggle on the **My Tracks** card. Select a **Tracking Duration**. You may be prompted to allow the app to access your motion and fitness activity. If so, tap **OK**.

The minimum tracking duration is 4 hours. If you only want to track your location for a short period, you may select **Until Switched Off** as the duration **but will have to remember to turn tracking off when you no longer want to track your location**.

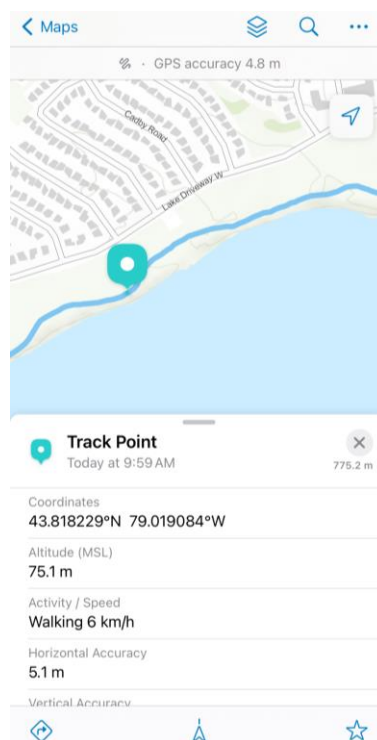
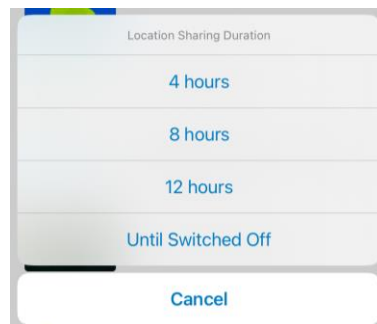
There is an ArcGIS Field Maps app for Apple Watch that can be used to toggle tracking on and off when Field Maps is running on a paired iPhone.

- To see information about your tracked locations, either while in the field or after returning from the field, tap the **My Tracks** card to open the map.

- Open the **Layers** list and tap on **My Tracks**. The map will zoom to any tracks stored on your device.

The app will upload tracks at regular intervals and will delete tracks that have been uploaded from your device after 72 hours. Tracks are also deleted from the device when you sign out of the app. Uploaded tracks are stored in your ArcGIS Online organization for 30 days.

- Tap on a point in your tracks to see the coordinates, accuracy, activity and speed.
- When you've finished tracking your location, return to the maps list and find **The Trans Canada Trail** map under **Favorites**. Open the map.
- Open the layers list and turn on the **My Tracks** layer.
- Compare your tracks to the Trans Canada Trail line features to see if you were on the trail while tracking your location.



Summary

In this tutorial, you have learned how to explore maps in the ArcGIS Field Maps mobile app, both with and without logging in; how to use the measure and search tools; and how to add favourites and markup on your device. You may also have learned how the app can be used to track your location.

Future Considerations

This tutorial is the first in a learning path on field apps. ArcGIS Field Maps can also be used to collect data in the field. In subsequent tutorials in the learning path, you will learn how to create and configure a

web map Field Maps Designer that can be used for data collection. You will also learn how to collect data using the mobile app.

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