



Publication Date: June 2022

Deploy a Location Sharing Solution with ArcGIS Field Maps

Essential tasks and best practices for deploying a location sharing solution with ArcGIS Field Maps.

Overview

TASK	COMPLETE
1. Introduction	<input type="checkbox"/>
2. Account requirements	<input type="checkbox"/>
3. Considerations	<input type="checkbox"/>
4. Configure user types and roles	<input type="checkbox"/>
5. Create location sharing content	<input type="checkbox"/>
6. Start sharing location	<input type="checkbox"/>
7. Learn more	<input type="checkbox"/>
8. FAQ	<input type="checkbox"/>

1. Introduction

Location sharing is a capability offered with [ArcGIS Field Maps](#) that allows you to monitor where mobile workers are and understand where they've been. Here are some examples of why you might implement location sharing into your workflows:

- **Monitor special events**—Know where your personnel are during large scale events to ensure safety and provide quick response times.
- **Provide proof of work**—Verify on-site inspections completed by your team.
- **Determine area coverage**—Determine area coverage during events such as invasive species removal or search and rescue missions.

Location sharing is supported on ArcGIS Online and ArcGIS Enterprise. Follow along with this guide to successfully deploy location sharing with Field Maps.

Note: For more detailed information about the location sharing capability, see [Enable location sharing in ArcGIS Online](#) or [Configure location sharing in ArcGIS Enterprise](#).

Key components

There are three necessary components for deploying the location sharing capability with ArcGIS Field Maps:

- **Location sharing feature layer**—Tracks and last known locations are uploaded from Field Maps to the location sharing feature layer. Location sharing is available across your organization and can be enabled by any administrator. Once location sharing has been enabled, licensed users in your organization can use the Field Maps mobile app to upload their historical and current locations to the location sharing layer. Users only see their own tracks, and additional permissions are required to view the tracks of others.

The location sharing feature layer consists of three layers:

- **Last known locations**—A point layer that contains a single record for each user representing their most recently reported location.
- **Tracks**—A point layer that contains a record for each location where a mobile worker shared their location (a breadcrumb trail).
- **Track lines**—A polyline layer that contains lines showing where the mobile worker has been (ArcGIS Online only).

- **Track views**—Tracks and last known locations can be shared with other users in the organization via track views. A track view is a special type of feature layer that requires an additional privilege to use. A track view contains a list of mobile users whose tracks are displayed as well as a separate list of track viewer users who are allowed to view the tracks. Like any other feature layer, track view layers can be used in maps, dashboards, and apps.
- **Field Maps mobile app**—Tracks and last known locations are uploaded from the Field Maps mobile app to the location sharing layers. Field Maps records tracks whether or not there is a data connection and provides mobile workers with control of when they are and are not tracked. Several optimizations are used to minimize the [impact on device battery](#).

2. Account requirements

Before you can deploy a location sharing solution, your organization must meet the following requirements:

- Location sharing user type extensions must be included in your subscription.
- Location sharing must be enabled for your organization.

License location sharing

Location sharing is an organization extension that requires a user type extension for each mobile worker. There are two ways that a user can be licensed:

- **Assign a Mobile Worker user type**—The location sharing user type extension is included in the Mobile Worker user type.
- **Assign an add-on location sharing user type extension**—The location sharing user type extension can be added to any user type, including Viewer.

For more information, see [Share location requirements](#).

Enable location sharing

For mobile workers to upload tracks, the location sharing capability must be enabled for your organization. This must be done by an administrator. Tracks stored in ArcGIS Online are retained using a 30-day rolling window and there is no additional storage cost. In ArcGIS Enterprise, additional configuration options are available.

- See [Enable location sharing in ArcGIS Online](#)
- See [Configure location sharing in ArcGIS Enterprise](#)
- See [ArcGIS Tracker Deployment Guide for ArcGIS Enterprise](#)

3. Considerations

It's important to understand how location sharing data will be used by stakeholders. Consider the following questions before you begin configuring user types and creating location sharing content:

- Do mobile workers need to see each other's locations in near real-time?
- Do the locations of mobile workers need to be displayed in a dashboard?
- How should the locations of mobile workers be visualized?

Do mobile workers need to see each other's locations?

For many location sharing deployments, it's critical that mobile workers can see where other workers are at any time. This is supported in Field Maps, but requires [additional steps to configure](#). Create a .csv file or a list of all the users who need to view other users' tracks.

Do the locations of mobile workers need to be displayed in a dashboard?

You can use [ArcGIS Dashboards](#) to display the last known locations of mobile workers. A dashboard can be displayed in an emergency operating center (EOC) during an event where situational awareness is critical. Dashboards can also be shared with additional stakeholders as necessary. See [Add the map to a dashboard](#).

How should the locations of mobile workers be visualized?

It's important to understand if locations need to be visualized based on the mobile worker's role (for example, a paramedic), their last update time, or any other attribute. If symbolizing by roles, make sure you know how and when roles may change. It's also important to know if the historical tracks and lines need to be displayed in the map, app, or dashboard you're using.

4. Configure user types and roles

There are two personas in a location sharing solution: mobile workers and track viewers. Each persona requires specific privileges and licenses. A mobile worker can also be a track viewer if they need to view the tracks of other mobile workers. Configure user types and roles for a location sharing solution by completing the following steps:

- Add users to your organizations
- Configure mobile user extensions
- Configure track viewer roles

Add users to your organization

If you are deploying a location solution for the first time, you may need to add new users to your organization. This can be done quickly by importing users from a .csv file.

- See [Invite or add members in ArcGIS Online](#)
- See [Add members to your portal in ArcGIS Enterprise](#)

Configure mobile user licenses

For mobile workers to share their location, they must have a location sharing user type extension. This can be done by setting their **User Type** to **Mobile Worker** or by assigning an add-on **ArcGIS Location sharing** user type extension.

Note: ArcGIS Tracker licenses assigned previously are still supported for sharing location in Field Maps.

- See [User types, roles, and privileges in ArcGIS Online](#)
- See [User types, roles, and privileges in ArcGIS Enterprise](#)
- See [Manage licenses in ArcGIS Online](#)
- See [Manage licenses in ArcGIS Enterprise](#)

Configure track viewer roles

To view the tracks of mobile workers, a user must have the **View location tracks** privilege assigned to their role. The easiest way to do this is by creating a new custom role that includes this privilege. Assign this role to each user who needs to view the tracks of other mobile workers.

Note: Depending on the current roles assigned to your users, you may need to change existing roles or create additional roles with more privileges.

- See [User types, roles, and privileges in ArcGIS Online](#)
- See [User types, roles, and privileges in ArcGIS Enterprise](#)
- See [View tracks in ArcGIS Online](#)
- See [View tracks in ArcGIS Enterprise](#)

5. Create location sharing content

Once location sharing has been enabled for your organization and users are configured, build the maps and apps that mobile workers use to track location and monitor activity. Complete the following steps:

- Create a track view.
- Add a track view to a map.
- Add a map to a dashboard.
- Configure a map for mobile users.
- Create geofences to control location sharing.

Create a track view

Track views are created in the Track Viewer web app. Select the mobile users who should appear in the track view and which users can view those tracks. Once completed, a hosted feature layer view and a group in ArcGIS Online or ArcGIS Enterprise that controls access to the track view are also created. The layer is available to use in maps and apps, including Track Viewer.

*Note: You can share the track view with users outside your organization by inviting them to the group created with the feature layer view. For users to access the track view, the administrator for their organization must assign the **View location tracks** privilege to their role.*

- See [Create track views in ArcGIS Online](#)
- See [Create track views in ArcGIS Enterprise](#)
- See [Track layers in ArcGIS Online](#)
- See [Track layers in ArcGIS Enterprise](#)

Add a track view to a map

Use Map Viewer to create a new map or open an existing one and add the track view feature layer to the map. Each layer should be configured to suit your specific requirements, but here are some general recommendations.

Layer visibility

The last known locations layer should be the first layer listed in the map so it draws on top of every layer listed below it. To improve overall performance when panning and zooming the map, set the **Visible range** of the tracks layer from **Street** to **Room**. Similarly, for the track lines layer, set the **Visible range** from **World** to **Street**.

- See [Set transparency and visible range \(Map Viewer\)](#)

Layer filters

Apply a temporal filter to all three location sharing layers to avoid showing unnecessary or stale data (for example, showing outdated location timestamps).

- See [Apply filters \(Map Viewer\)](#)

Layer refresh intervals

Refresh intervals determine how frequently layers are updated in the map. The last known locations layer should have a relatively short interval (30 seconds to a minute). This ensures the map accurately reflects where someone is as they move. The track points and track lines layers should use a longer interval (5 to 10 minutes) since those are uploaded less frequently.

- See [Set a refresh interval \(Map Viewer\)](#)

Layer symbology

The three most common ways to symbolize track data are by location, name, or category or role.

Symbolize by location

The default drawing style for each location sharing layer is **Location (single symbol)**. Each user and their tracks are symbolized using the same colors and symbols.

Symbolize by name

If mobile users do the same type of work, it may make sense to use a different color to more easily identify specific mobile users. In this case, a **Types (unique symbols)** drawing style should be used with the **Full Name** or **Created User** attribute.

Symbolize by category or role

When there are multiple groups of mobile users, it may make sense to symbolize each user based on their role or the type of work they do. For example, all police officers could be blue, and all firefighters could be red. In this case, a **Types (unique symbols)** drawing style should be used with an Arcade expression that returns a category for a given feature.

Here is a sample Arcade expression that determines if a feature should be categorized as Firefighter or Police Officer:

```
var fireFighters = ['username1', 'username2']
var policeOfficers = ['username3']

if (includes(fireFighters, $feature.created_user)) {
  return 'Firefighter'
}

else if (includes(policeOfficers, $feature.created_user)) {
  return 'Police Officer'
}
```

When tracks need to be symbolized based on the project they're being collected for, a **Types (unique symbols)** drawing style should be used to symbolize the *category* field. You can define values for the *category* field by [adding track categories](#) in the Field Maps web app.

- See [Style location \(Map Viewer\)](#)
- See [Style categories \(Map Viewer\)](#)
- See [Getting Started with ArcGIS Arcade documentation](#)
- See [Generate a user-based Arcade expression](#)

Add a map to a dashboard

Once you've configured a map for location sharing, add it to a dashboard in ArcGIS Dashboards. This dashboard can be shared with stakeholders so they can see where mobile users are in near real-time. Once the map is added to the dashboard, you can add additional dashboard elements such as indicators and lists.

Make sure you share your dashboard with the track viewers group. For security and privacy, the location sharing layers cannot be shared publicly, so your dashboard and maps should not be shared publicly.

- See [Create a dashboard](#)
- See [Create a location sharing dashboard](#)

Configure a map for mobile workers

You may want to create a separate map for mobile workers. To get started, make a copy of the map you configured for track viewers and make adjustments as needed. For example, if mobile workers do not need to see each other's locations, you can remove the track view layers from the map.

Note: It is not necessary to have a track view layer in the map to record and share tracks. If a track view layer has been added to the map, the map cannot be taken offline.

From the **App settings** page in the Field Maps web app, you can require that mobile workers track their location when using the map.

- See [Require location sharing in ArcGIS Field Maps](#)

Track categories can be added from the **App settings** page in the Field Maps web app to associate information with each track point. Categories can be useful for filtering, symbolizing, and analyzing tracks in other apps.

Consider how you want to filter and symbolize tracks when adding track categories. For example, you may want to add the type of work being done or the name of the project that's being worked on.

- See [Add track categories in ArcGIS Field Maps](#)

This map must be shared with mobile workers so they can use it in the field. Use the **Sharing** page in the Field Maps web app to share the map with a group of mobile users or with the entire organization. A link and QR code are generated—these can be provided directly to mobile users to streamline the process of signing in, opening a map, and sharing their location.

- See [Share the map in ArcGIS Field Maps](#)

Create geofences to control location sharing

You can create geofences that automatically start and stop location sharing when mobile workers enter or exit specific areas on the map. For example, you may only want mobile workers to share their location while working on company property.

You can add geofences to a map from the **Geofences** page in the Field Maps web app. Once mobile workers enable location sharing on their device, it's automatically turned on or off when they enter or exit a geofence. This helps sustain battery life and ensures they are only sharing location when they need to.

- See [Geofences](#) (help topic)
- See [Get started with geofences in ArcGIS Field Maps](#) (blog post)

6. Start sharing location

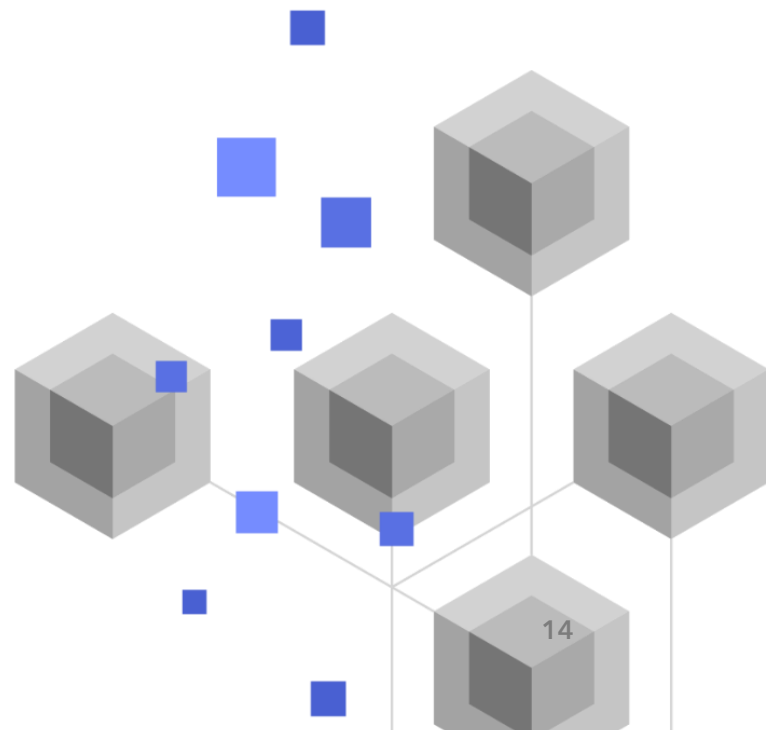
Once users and maps are configured for location sharing, mobile workers can start recording their locations. Location sharing works offline too—when a worker regains connectivity, the tracks and last known location will automatically upload to the location sharing layer.

First, account credentials should be assigned to each user so they can sign in to the mobile app. Next, instructions should be provided to mobile users about how to get started. A template instruction manual is available: [location sharing instructions template](#).

At a high level, the following steps should be provided to mobile users in an instruction manual:

1. Download the Field Maps mobile app from the Apple App Store or Google Play Store.
2. Scan the provided QR code to launch the app.
3. Sign in with credentials.
4. Accept the permission prompts for location, motion, and notifications.
5. Select a location sharing duration.

Note: Mobile workers may not have to download the mobile app if a [mobile device management solution \(MDM\)](#) is used.



7. Learn more

There is so much more you can do with location sharing in ArcGIS Field Maps. The resources in this section will help you explore more opportunities as well as help you troubleshoot and answer questions.

- For a more hands-on learning experience, see the [Get started with location sharing in ArcGIS Field Maps Discovery Path](#).
- To learn about ways to analyze track data, see the [Analyze track data captured in Field Maps Discovery Path](#).
- Join the [ArcGIS Field Maps Community](#). You can join discussions with a diverse group of ArcGIS Field Maps users and Esri staff.
- Read [articles from the ArcGIS Field Maps team](#) on the [ArcGIS Blog](#).
- Browse the [ArcGIS Field Maps Resources page](#). This is your hub for all things ArcGIS Field Maps—documentation, blogs, videos, learning materials, and more.

Troubleshooting and support

Looking for assistance with ArcGIS Field Maps? Check out the following:

- The ArcGIS Field Maps [help](#) is searchable by keyword and contains documentation for everything from designing layers and maps to configuring forms and using the app.
- Consult the [ArcGIS Field Maps Community](#) and get specific answers from peers and members of the ArcGIS Field Maps team.
- If you've tried the options above and still need assistance, contact [Esri Technical Support](#) for technical issues or [Esri Customer Service](#) for licensing questions.



8. FAQ

How do I get the app?

The ArcGIS Field Maps mobile app is available on [Google Play](#) for Android devices and the [App Store](#) for iPad and iPhone.

Note: If you can't access Google Play, see the [technical article](#) about downloading Field Maps from Esri.

Can I change the upload frequency of tracks?

The track and last known location upload frequency can be configured when using a mobile device management (MDM) system. See [Deploy your map](#) for additional details.

Can I change how tracks are collected?

By default, a [battery optimization setting](#) is enabled on Androids and iOS. This means tracks are collected using a combination of activity detection and distance moved. This setting can be turned off to capture tracks more frequently if desired.

How can I analyze the track data?

Tracks can be [exported](#) from ArcGIS Online, and tools in ArcGIS Pro can be used to gain insights into the data. If using ArcGIS Enterprise, you can use [ArcGIS GeoAnalytics Server](#) to directly analyze the features stored in the location sharing layers.