



# ArcGIS Field Maps: Overview and What's Coming



# ArcGIS Field Maps

All in one map-centric mobile experience, everywhere

- Easy to use
- Streamlined data collection & editing
- Relevant location focused content
- Office and Field Synchronicity
- Connected and Offline
- Part of the ArcGIS System

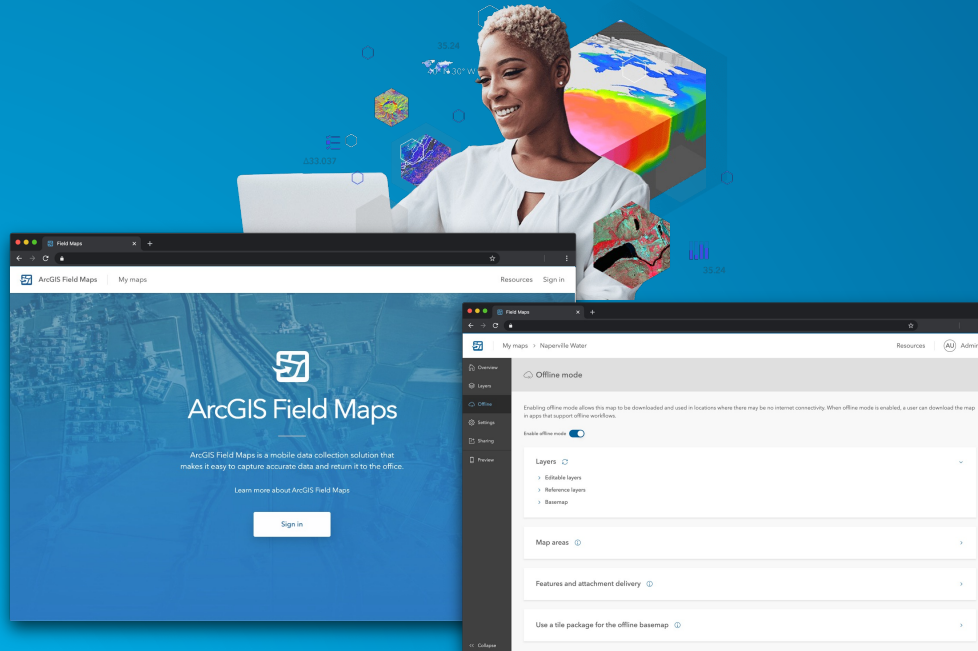


# ArcGIS Field Maps

## Components

### Prepare Maps for the Field

*Field Maps web app*



### Do Work in the Field

*Field Maps mobile app*



# Map Viewing and Map Markup

Know what's around you, know where you are, locate assets and information about them, even in remote areas.

- Rich interactive maps
- Powerful map tools
- Accurate up-to-date information
- Location-aware
- Indoors and outdoors





# Advanced Map Viewing Capabilities



## Geofencing

- Location Alerts



## Indoors

- Indoor Maps, Indoor Positioning Support (IPS)



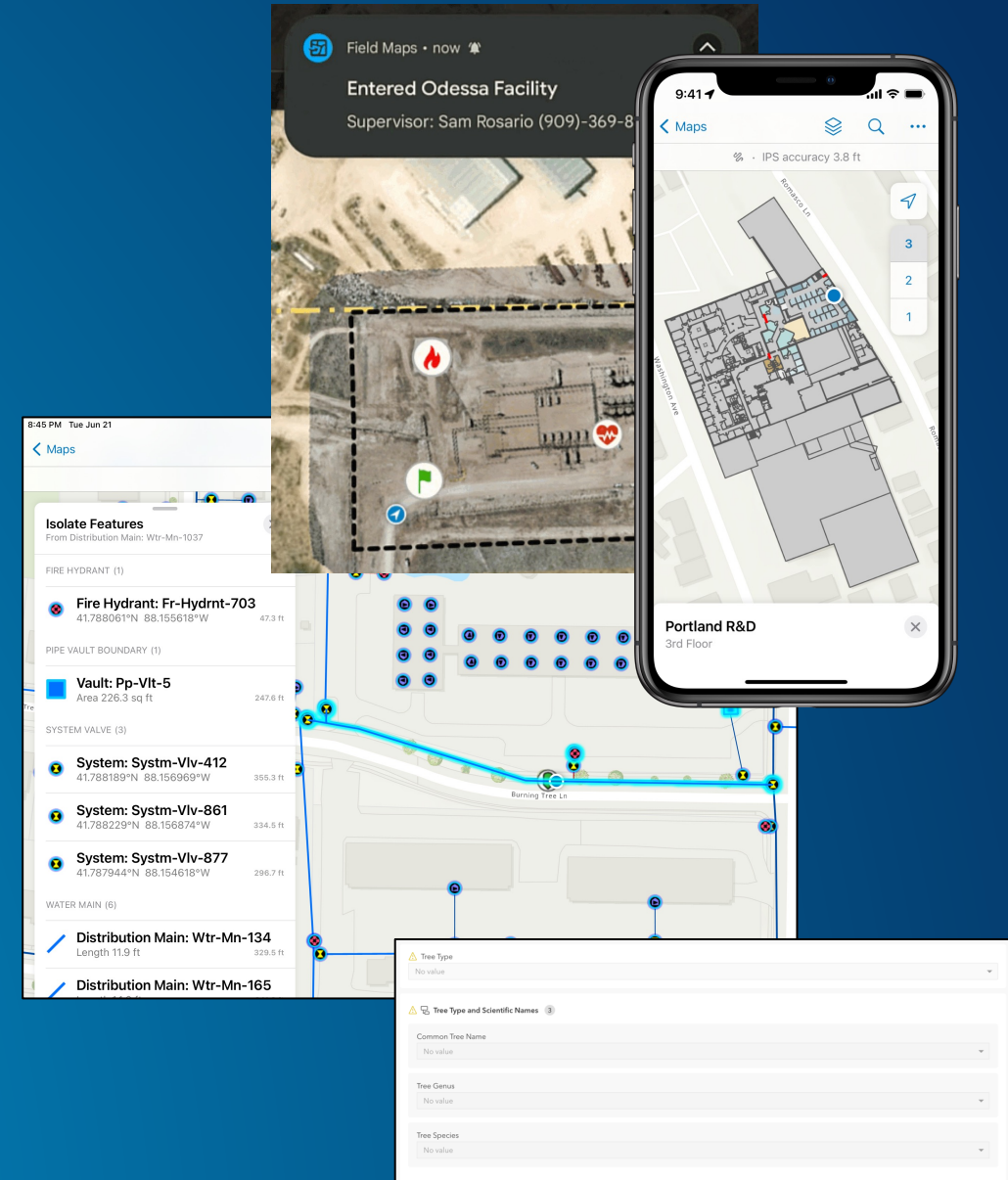
## Utility networks

- Connected support for view, trace, query



## Linear referencing

- Find measurements along a route



# Data Capture & Editing

Digitally transforming paper-based mobile workflows whilst accelerating data collection and the time it takes for data to be ready for decision making

- Intuitive data collection tools
- Dynamic Smart Forms
- High accuracy capture
- Offline or Online
- Indoors and Outdoors



# Build Smart Forms

Streamline data collection

Improve the way you collect and update data in the field with user-friendly map-centric smart forms.

- System-wide capability
- Drag & drop design experience
- Multiple input types and field controls
- Advanced capabilities with Arcade

Maps > Redlands Water

Resources | Doug

Content

Find content

Add layers

Layers

- Service Connection
- Service Meter
- System Meter
- Fire Hydrant
- System Valve
- Service Valve
- Backflow
- Flow Valve
- Pressure Valve
- Pump
- Fitting
- Storage
- Supply
- Station

Tables

- Basemap

Form

Templates

System Valve

Valve Properties

Asset ID

Asset type \*

Valve Type

Diameter

Has Bypass

Owned By

Maintained By

Properties

Formatting

Display name\*

Valve Type

Field name

Field type

Input type

Description



11:12

Cancel Collect Submit

System Valve Inspection

Related to Open Ball Valve

VALVE LOCATION

OPERATION

Final Torque

80

# of Turns

2

Number of full and 1/4 turns.

Stem OK? \*

Unknown

Yes

No

Packing OK? \*

Unknown

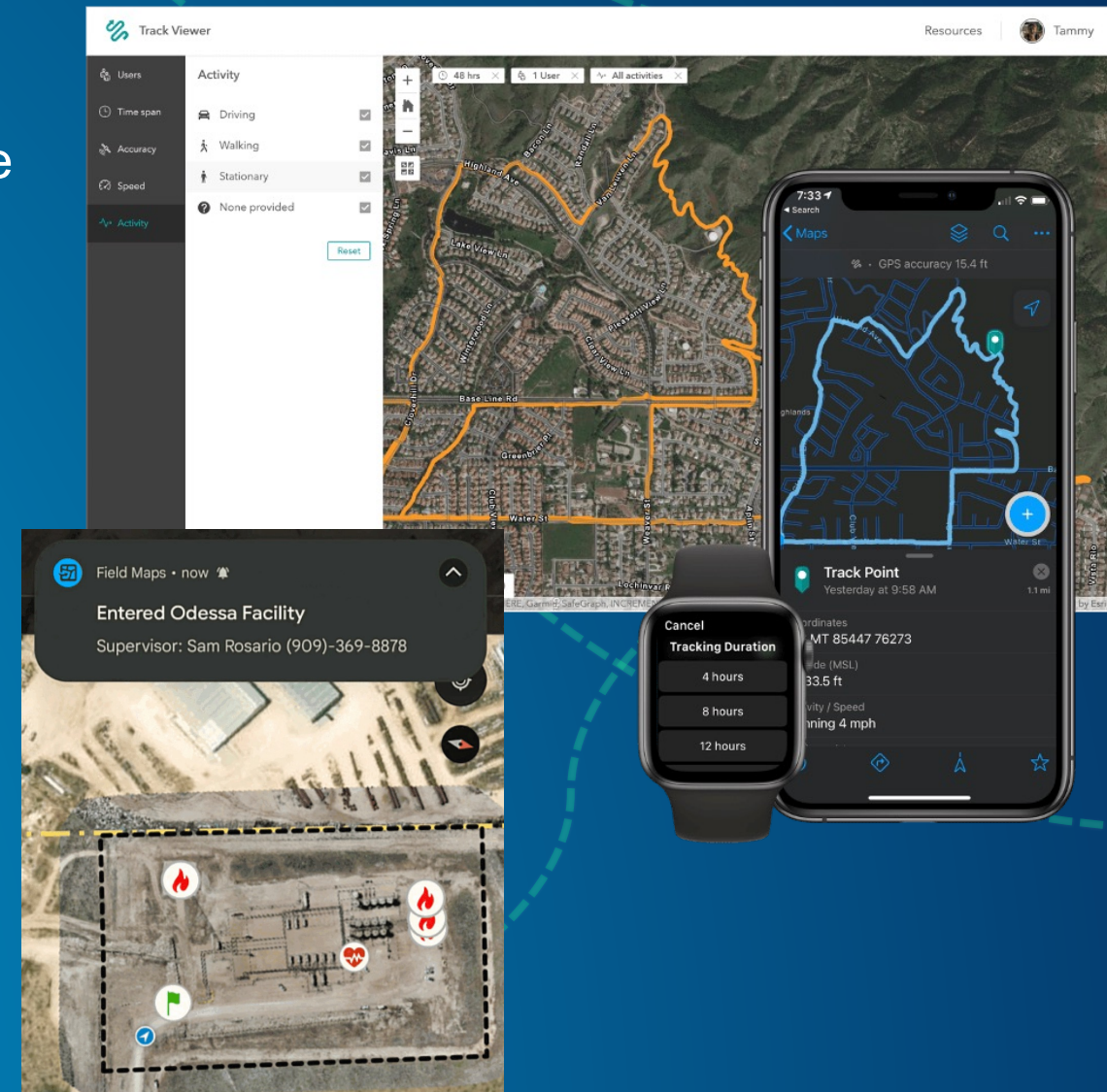
Yes

No

# Operational Awareness

Providing situational awareness in the field and the back office. Mobile workers can receive location alerts and may share their location while doing work indoors or outdoors to:

- Coordinate work based on proximity
- Improve response times
- Capture audit trails
- Manage events
- Improve worker safety





# What's New

## Highlights



### Geofencing

- Location Alerts, Location Sharing



### Indoors

- Indoor Maps, Indoor Positioning Support (IPS)



### Utility Networks

- Connected support for view, trace, query



### GPS metadata for lines and polygons

- Summary level statistics



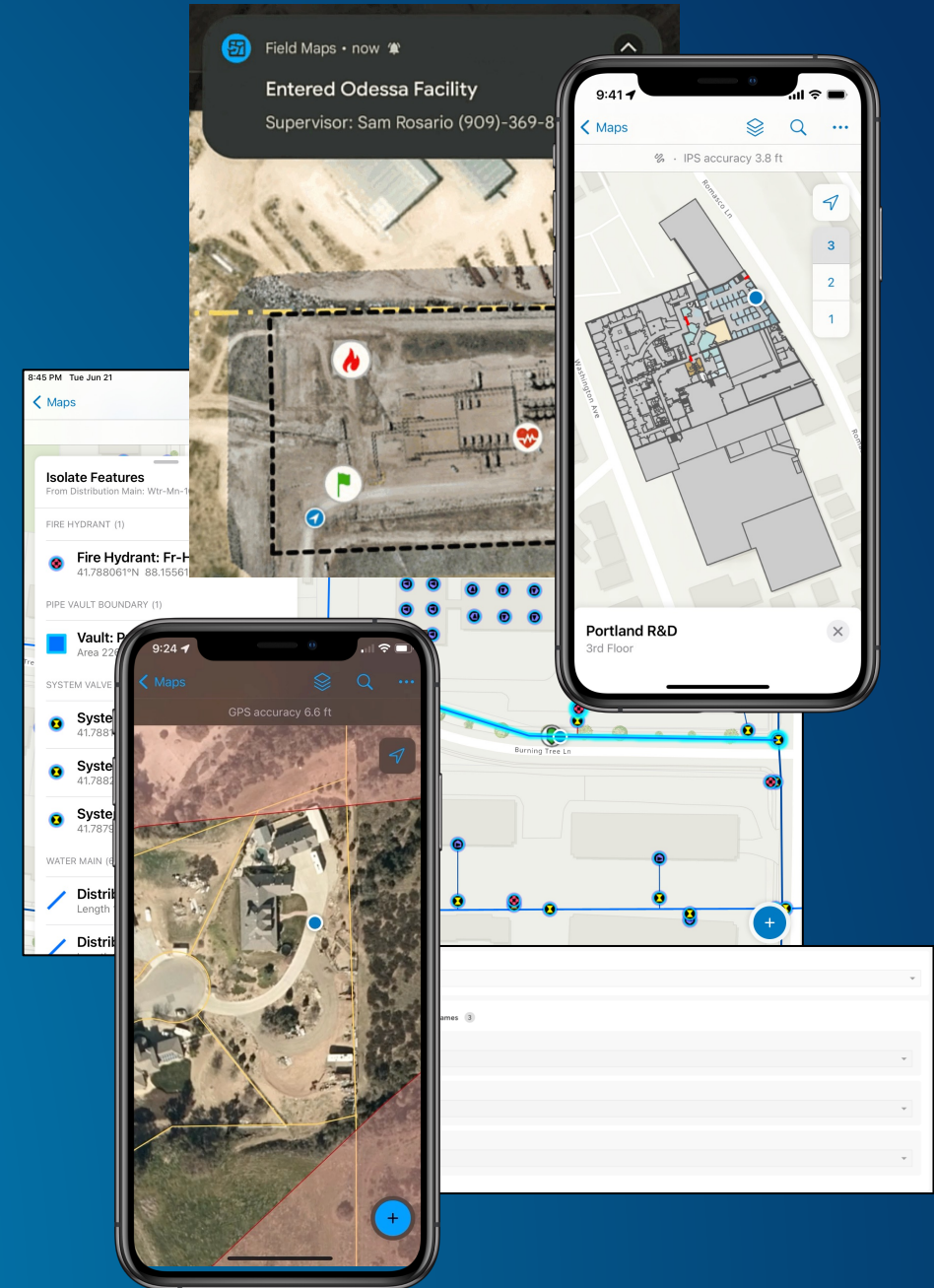
### Smart Forms

- Calculated Expressions, Contingent Values



### Webhooks

- Integromat/Make, PowerAutomate



# Geofencing

## Real-time Location Alerts



### Notify mobile workers

- When they enter or exit a location
- Supported online or offline
- When app is backgrounded



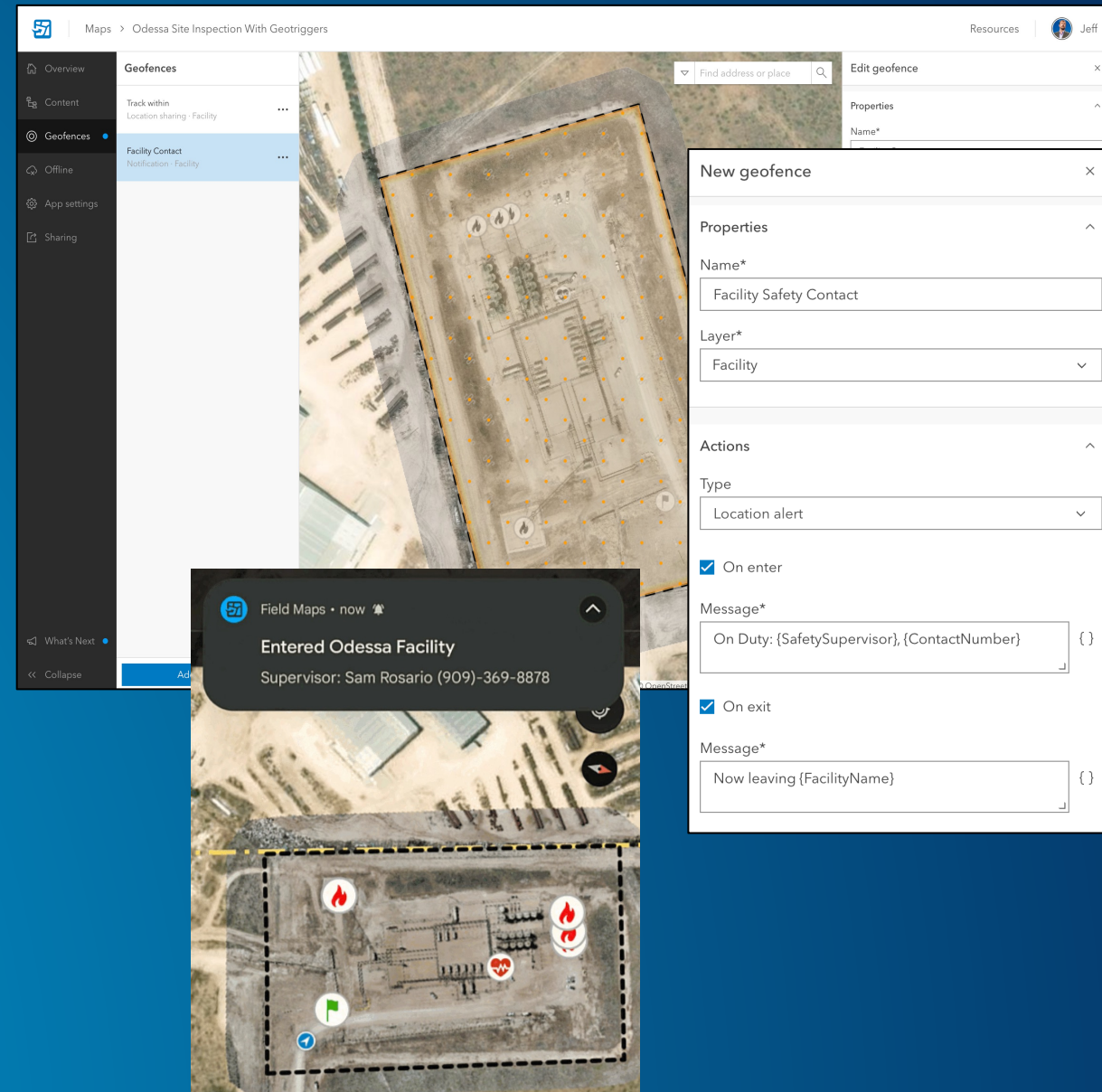
### Author Geofences

- From an existing map layer



### Location Alert Includes

- Name
- Map Layer
- Message (text and field values)
- Supports On Enter and/or On Exit



# Geofencing

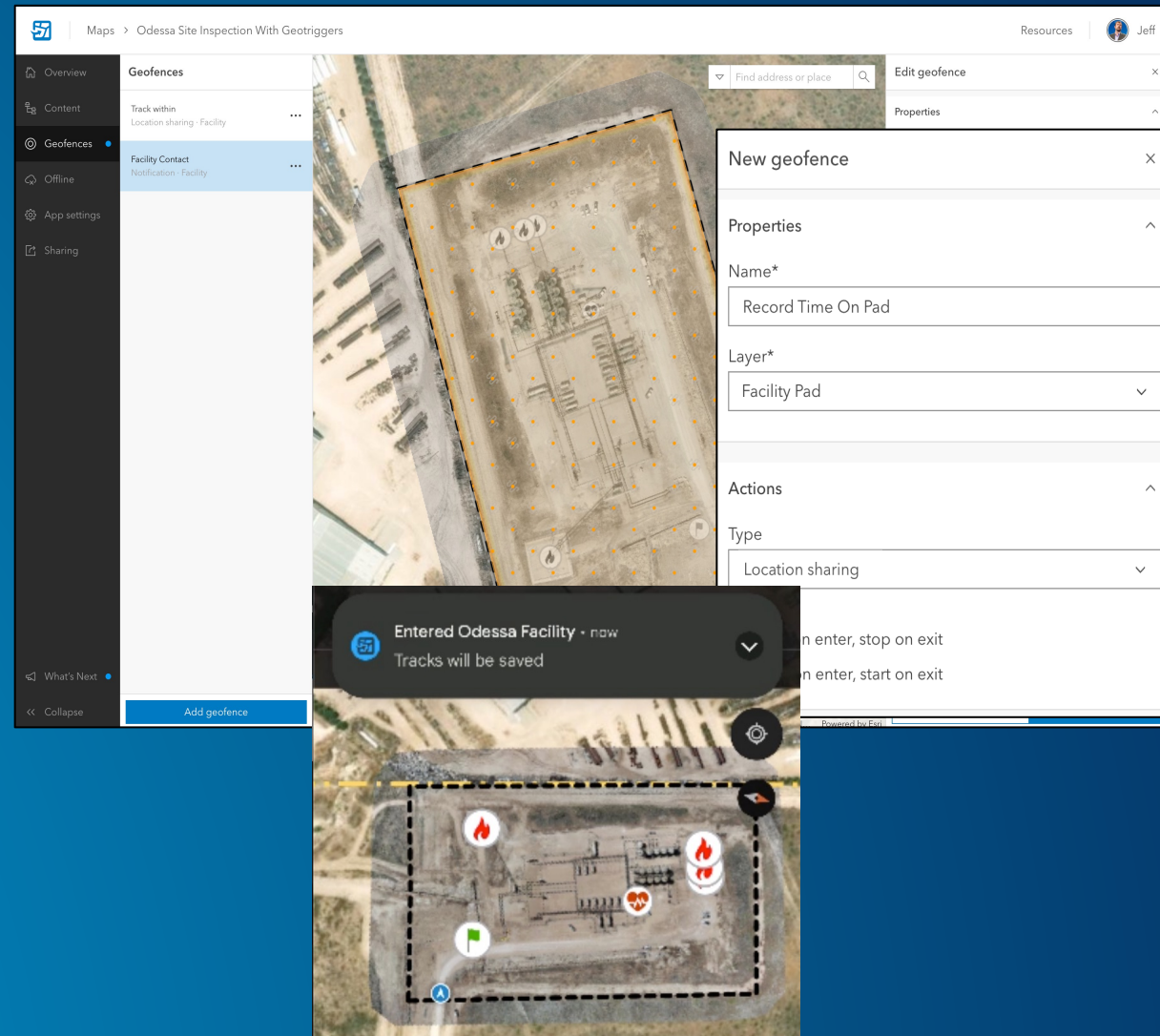
## Control location sharing

### Automatically start/stop location sharing

- Supported online or offline
- When app is backgrounded

### Author geofence action

- From an existing map layer
- Sharing behavior includes
  - Start on enter, stop on exit
  - Stop on enter, start on exit





# High Accuracy Data Collection

## GPS metadata



### Point, line, and polygon support

- Fields hidden during collection
- Fields not directly editable in Field Maps



### Summary statistics (line, polygon)

- Average/worst horizontal and vertical accuracy
- Worst fix type
- Number of manual locations



### Adding GPS metadata fields

- When creating new layers
- Existing layers
  - ArcGIS Pro
  - Python notebooks (<https://github.com/Esri/field-maps-scripts/>)

Field alias	Field name	Field type	Domain
Position source type	ESRIGNSS_POSITIONSOURCE	Short	ESRI_POSITIONSOURCETYPE_DOMAIN ◦ 0-Unknown ◦ 1-User defined ◦ 2-Integrated (System) Location Provider ◦ 3-External GNSS Receiver ◦ 4-Network Location Provider
Receiver Name	ESRIGNSS_RECEIVER	String (50)	
Latitude	ESRIGNSS_LATITUDE	Double	
Longitude	ESRIGNSS_LONGITUDE	Double	
Altitude	ESRIGNSS_ALTITUDE	Double	
Horizontal Accuracy (m)	ESRIGNSS_H_RMS	Double	
Vertical Accuracy (m)	ESRIGNSS_V_RMS	Double	
Fix Time	ESRIGNSS_FIXDATE	Date	
Fix Type	ESRIGNSS_FIXTYPE	Short	ESRI_FIX_TYPE_DOMAIN ◦ 0-Fix not valid ◦ 1-GPS ◦ 2-Differential GPS ◦ 4-RTK Fixed ◦ 5-RTK Float
Correction Age	ESRIGNSS_CORRECTIONAGE	Double	
Station ID	ESRIGNSS_STATIONID	Short	

Point layer metadata

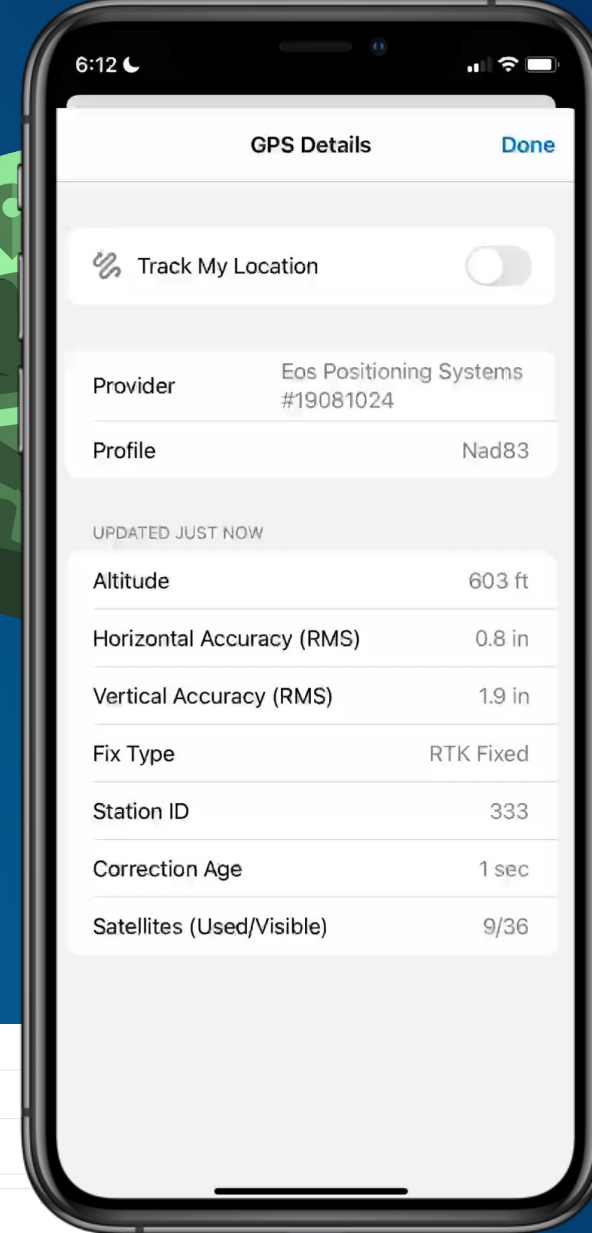
Create a feature layer

Options

Add GPS metadata fields  
Add fields to point layers that support capturing GPS receiver information.

Enable Z-values  
Allows modeling point, polyline, and polygon features in 3D.

Add GPS metadata fields to all layer types



Full list of current GPS values



# High Accuracy Setup


## Using Mobile Device Management

- Configure and deploy your Location Profile through an MDM
  - Can define one or more location profiles
- Takes the Location Profile configuration out of the mobile user's hands
  - Streamline configuration
  - Eliminate errors

Field Maps - Assignment

Distribution  
Restrictions  
Tunnel & Other Attributes  
**Application Configuration**

### Application Configuration

 **EMM Managed Access**  
Only devices enrolled in EMM will be allowed to install the app and receive policies below.

**Managed Access** ☒

Send Configuration ☒ ⓘ

[UPLOAD XML](#) ⓘ

Configuration Key	Value Type	Configuration Value
portalURL	String	<a href="https://myportal.mycompany.com/arcgis">https://myportal.mycompany.com/arcgis</a>
anonymousAccess	Boolean	true

+ ADD

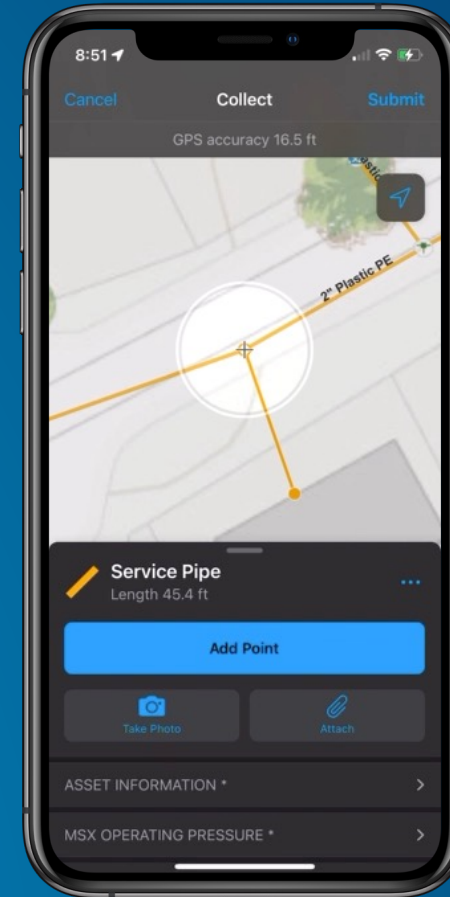


# Calculated Expressions

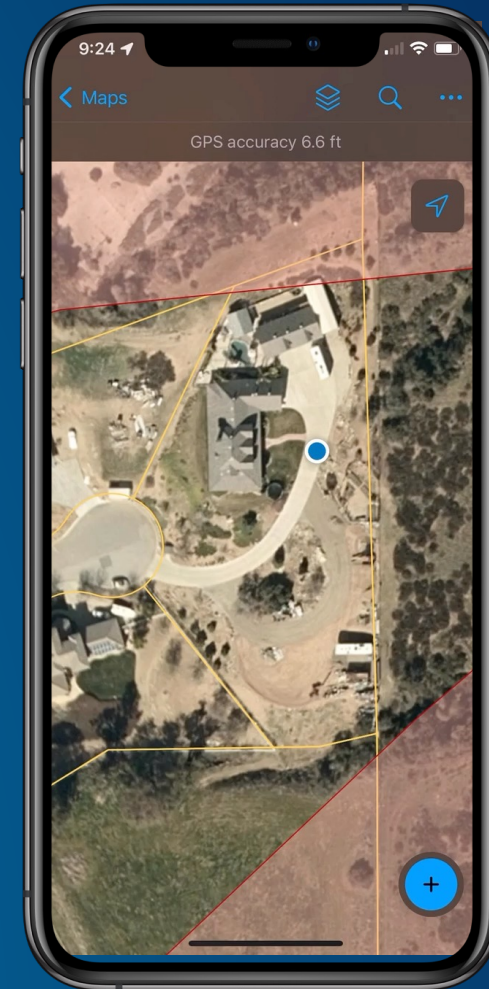
Increase efficiency and minimize errors

- Provide immediate feedback to mobile worker
- Calculations can use
  - Geometry, Attributes
  - Additional layers and tables in the map
  - Portal connection (user information, etc)
- Calculations can control
  - Required fields
  - Conditional visibility

Work online and offline



Decode barcode



Fields from other layers

# Contingent Values

## Using Field Groups

### Improve form entry using contingencies

- Asset Manufacturer > Model
- Genus > Species > Common Name

### Author in ArcGIS Pro

- Design Fields/Field Groups in ArcGIS Pro

### Configure in Field Maps web

- Place and organize field groups

Supported offline

The screenshot displays the 'Field groups' panel in ArcGIS Pro. It lists two field groups: 'Risk Categorization' and 'Tree Type and Scientific Names'. The 'Risk Categorization' group contains five fields: 'Failure Risk {Failure}', 'Impact Risk {Impact}', 'Impact Potential {ImpactPoten}', 'Consequences {Consequences}', and 'Risk Rating {RiskRating}', all of type 'int'. The 'Tree Type and Scientific Names' group contains three fields: 'Tree Type {TYPE}', 'Common Tree Name {COMMONNAME}', and 'Tree Species {SPECIES}', all of type 'abc'. A context menu is open over the 'Tree Type and Scientific Names' group, showing options: 'Data Design', 'Manage', 'View Metadata', 'Edit Metadata', and 'Properties'. The 'Data Design' option is selected, and a sub-menu is visible with options: 'Domains', 'Fields', 'Subtypes', 'Attribute Rules', and 'Contingent Values'.

The screenshot shows the Field Maps web application interface on a smartphone. The top status bar displays the time as 11:04. The main header shows 'Genus:' and a 'Done' button. Below the header is a search bar labeled 'Filter'. The main content area displays a list of tree genera: 'No value' (with a checkmark), 'RECOMMENDED', 'Quercus', 'Ulmus', 'Eucalyptus', 'Afrocarpus', 'Pinus', 'Podocarpus', 'Brahea', 'Butia', 'Dypsis', 'Jubaea', 'Phoenix', 'Washingtonia', and 'Livistona'.



# What's coming next

November 2022 release



# Getting Started with Field Maps

Simplifying the map authoring experience



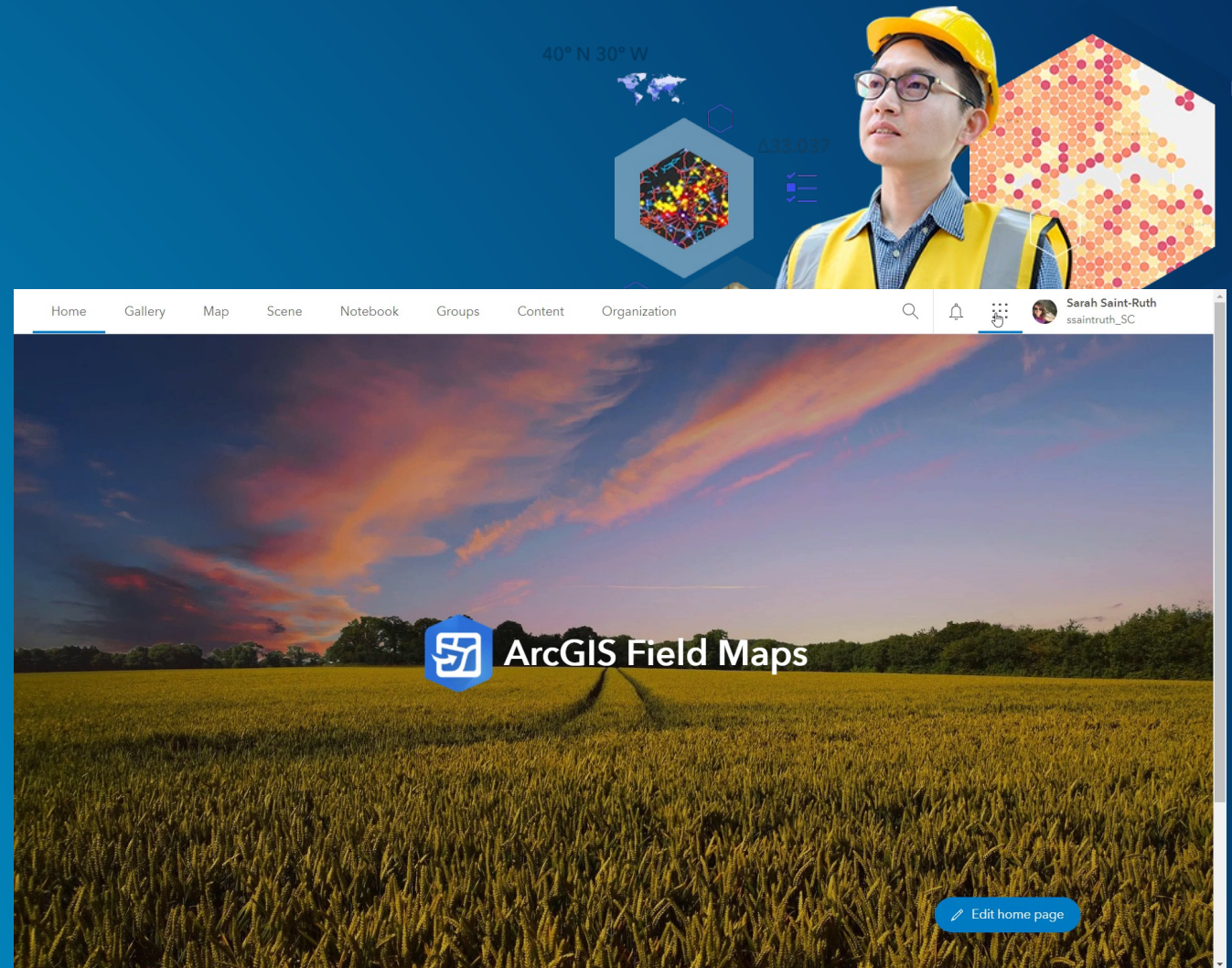
## Creating New Maps

- Create new maps and layers from scratch



## QoL improvements

- Nested group layers
- UX updates
- State management

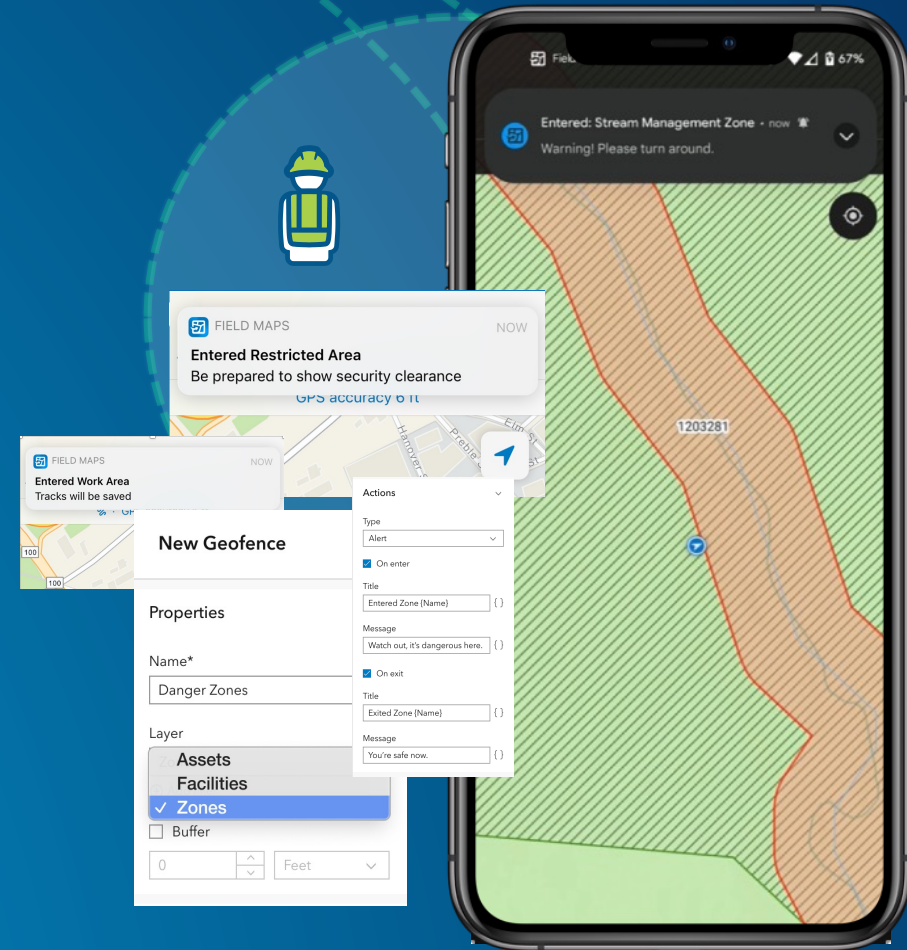


# Geofencing

Improving location alerts and location sharing

Support for point and line layers

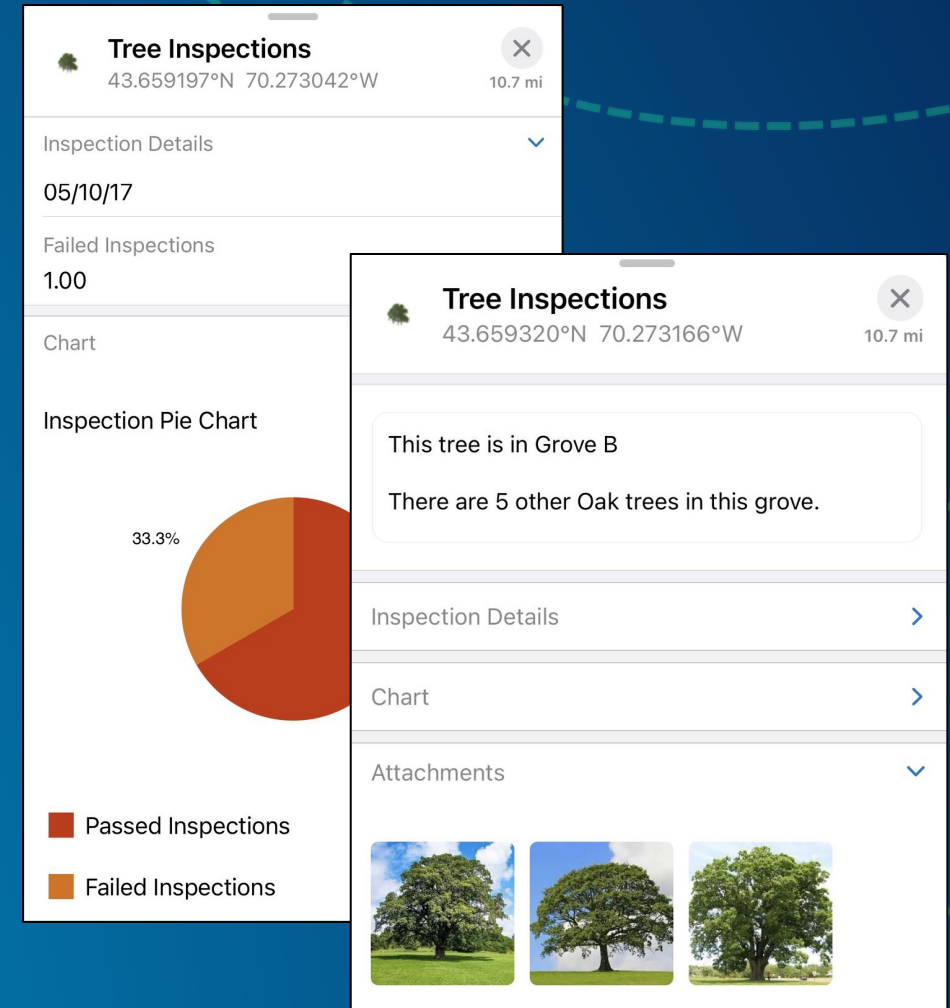
Filter map layers



# Next Generation Pop-ups

Support for pop-up elements

- Provide content rich information
- Use Arcade to provide dynamic content
- Use new elements like charts for an enhanced experience

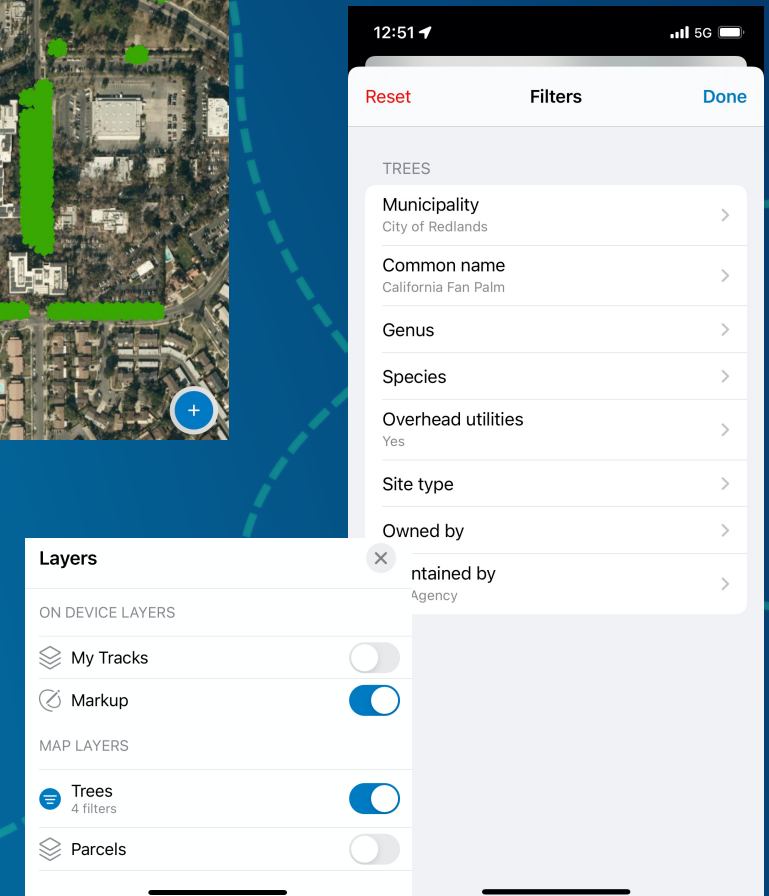
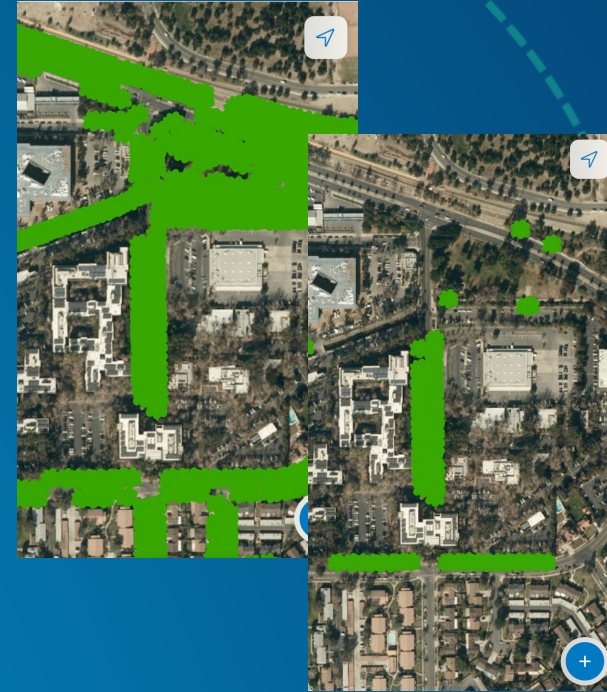




# Layer Filters

Dynamic filtering of map layers

- Text and numeric fields support
  - With and without domains
- Map author can:
  - Enable support for layer filtering
  - Choose fields used for filtering
- Mobile user can apply filters to layers
  - Using an AND query





# What's Coming Next

QoL Improvements for November 2022 release

Focused quality of life improvements reported by customers and partners

- One map used for online and offline workflows
- GPS metadata enhancements
- Form logic improvements with conditional fields
- Improving repetitive GPS collection workflows
- Improving app integration workflows
- iOS CAC card reader support

# Supporting Field Maps on Windows 11

Embracing the Windows platform



## Windows Subsystem for Android

- Expected release October 2022

The screenshot shows the Microsoft Docs website for Windows App Development. The page is titled "Windows Subsystem for Android™" and is part of the "Development environment / Android" section. The left sidebar contains a navigation menu with categories like "Windows development environment", "Developer tools", "Development paths", "Overview", "Windows Subsystem for Android™", "Native Android", "Cross-platform", "Defender settings to improve performance", "Test on device or emulator", and "Get started with various languages". The main content area includes a breadcrumb trail, a title, a date and read time, a summary paragraph, a list of prerequisites, a section for more information or support, a "This guide can help you test and debug your Android app on Windows" section, a "Preview Program" section, and a "Set up your development environment" section. The right sidebar has an "In this article" section with links to the Preview Program, development environment setup, Settings app, and input compatibility considerations.

Microsoft | Docs | Documentation | Learn | Certifications | Q&A | Code Samples | Shows | Events

Windows App Development | Explore | Development | Platforms | Resources | Dashboard

Filter by title

Docs / Windows / Development environment / Android /

## Windows Subsystem for Android™

Article • 08/18/2022 • 8 minutes to read • 8 contributors

Windows Subsystem for Android™ enables your Windows 11 device to run Android applications that are available in the Amazon Appstore. Android is a trademark of Google LLC. If you're a developer interested in targeting Windows desktop devices and optimizing for the Windows operating system, this guide is for you.

To make your Android app available on Windows 11 devices, you must:

- Submit your app to the Amazon Appstore®.

For more information or support:

- Sign up for updates to the Amazon Appstore on Windows program®.
- Visit the Amazon developer support portal® where you can find articles, forums, FAQs, or reach out for direct support via the Appstore "Contact us" page once you set up an Amazon Developer account.

This guide can help you test and debug your Android app on Windows:

- Set up your development environment, including prerequisites, installing the Amazon Appstore, and using the Settings app.
- Handle input compatibility considerations for Windows devices, such as: keyboard input, mouse input, and window management and resizing.
- Test and debug your app on a Windows 11 device.
- Troubleshoot and find answers.

### Preview Program

The Windows Subsystem for Android™ Preview Program allows users to receive early-preview builds of the Windows Subsystem for Android™ and Amazon Appstore on Windows. For more details, visit the Preview Program page.

### Set up your development environment

To test your Android app in the Windows desktop environment, a bit of set up will be required.

**In this article**

- Preview Program
- Set up your development environment
- Windows Subsystem for Android™ Settings app
- Input compatibility considerations for Windows devices

Show more

# ArcGIS® Field Maps Roadmap

## Near-term

- Layer Filtering
- Pop-up elements
- Geofencing
  - Line and point support, Filtering
- Indoors
  - Indoor aware data capture and editing
  - Location Sharing, Indoor geofencing
- Creating layers and maps from scratch
- Quality of life improvements
  - Offline maps improvements
  - Form improvements
  - GPS capture and metadata updates
  - App linking
- Navigator update
- Windows 11 support

## Mid-term

- Workforce coordination
  - Add personalized to-do lists to any map
  - Create and self-assign work in the mobile app
  - Use forms to complete work
- Smart Forms
  - Support for signatures, multi-select question
  - System/Device/Location variables
  - Relationships & attachments within form
  - Sensor integrations (LRF, others)
- Data Collection
  - Orthometric heights (inc. vertical transformations)
  - Multiple drawing modes
  - Nested data collection, photo markup
  - Rapid data collection, improved map-based collection
  - Offset data capture using Laser Range Finders






## Long-term

- Camera and Lidar capabilities
  - Augmented Reality
  - Measurement and offset data capture
  - Data capture (including Machine Learning)
- Navigation capabilities
  - Offline routing and voice guidance
  - Real-time weather and traffic
  - Real-time barriers
- Push notifications
- Smart watch capabilities
  - Compass, data capture,...



# Improving Accuracy of GIS Data

## Key benefits

-  Improves safety for the community and organization's mobile staff
-  Improves efficiency of field tasks
-  Improves integrity analysis
-  Increases revenue
-  Ensures regulatory and legal compliance

# Entire Organization Needs to Know “Where”



## Asset Development

- Planning
- Rights of Way
- Engineering
- Design
- Construction



## Asset Operations

- Inspection
- Maintenance
- Network Control
- Emergency Management



## Health, Safety & Environment

- Health
- Safety
- Environmental Management



## Business Management

- Tax Accounting
- Business Intelligence
- Revenue Protection
- Human Resources
- Legal



## Customers & Regulators

- Marketing
- Sales
- Customer Service
- Regulatory Compliance