Incident Mapping with ArcGIS Field Maps Tonto National Forest



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REQUIREMENTS

- □ Mobile device (iOS or Android) these instructions cover iOS only
- ArcGIS Field Maps app downloaded to device
- NIFC ArcGIS Online (AGOL) account and password
- □ Member of the SW Tonto NF IA Map Group

- □ Must be online (WiFi or Cellular) to download a map for field use
- Sync your map frequently & re-sync at the beginning of every shift
- Debrief other fire staff on what features you have collected

SIGN INTO ARCGIS FIELD MAPS

- 1. Tap the Field Maps app and sign in with ArcGIS Online. 2. Enter your username and password and tap Sign In.





3. Use the Authentication app to enter the code. Here are details on how to: Set up Multifactor Authentication.



IMPORTANT NOTES

Field Maps can function in two modes:

Online: Users are automatically in online mode when they use internet service to login to the app and open a map. You can navigate and collect features and the edits you submit are synced in real time. You also receive other feature updates in real time. The basemap loads from an online basemap and will consume data as you pan and zoom to different areas. Any loss of cellular data service will interrupt navigation and data collection. Online mode is not recommended for most field operations.

Settings of interest that can be accessed from the Maps screen > Profile icon:



- Accuracy accuracy required to collect data via GPS; default is 30 ft. Increase the value to avoid having collection interrupted while in challenging terrain like canyons or heavy tree cover. A recommended value is 300ft
- Streaming time or distance interval that Field Maps records a vertex while streaming a line or polygon as you move; increase the value for data collection via air travel, decrease the value for data collection via foot travel

- Offline: An offline area is created and features within that area are downloaded to your device. New features can be collected within the offline area and updates can be made to downloaded features. You cannot collect or update features outside of the offline area. Features are synced by the user when a reliable internet connection is available. Syncing is a two way operation – edits you've made are pushed to the database and edits from other users are received from the database
- Photo Size size of photo attachments; larger photo sizes require more device storage
- Units Set coordinates to Degrees Decimal Minutes, Area to Acres, Length to Miles or Feet
- Download & Sync If you don't want to use your device's data plan you can limit Field Maps to use Wi-Fi only to download maps and sync

Levels of detail scale reference

Room	1:100	Town	1:40,000
Rooms	1:400	City	1:80,000
Small Building	1:800	Cities	1:160,000
Building	1:1,250	Metropolitan Area	1:320,000
Buildings	1:2,500	County	1:750,000
Street	1:5,000	Counties	1:1,500,000
Streets	1:10,000	State/Province	1:3,000,000
Neighborhood	1:20,000	States/Provinces	1:6,000,000

Local Incidents vs. Team Incidents

If you've worked on a Type 1 or 2 incident, you've likely utilized a Collector or Field Map that the GIS shop set up specifically for the incident (i.e. 2023 Valentine Fire Field Map). For local incidents on the Tonto NF, you will use the same Field Map for each incident over the course of the season (2024 Tonto NF IA Field Map).

In both cases, the Field Maps are using the National Incident Feature Service and the data collected ends up in the same database. If you work on a Type 1 or 2 incident, check in with the GIS shop to see if their Field Map has any additional reference data

Deleting Features – In offline mode, features can be deleted before syncing. Once synced, use the Delete this feature? attribute to tell the GIS Staff that a feature should be deleted

CLASSROOM EXERCISE #1 - COLLECT A FEATURE IN ONLINE MODE BY DIGITIZING

Scenario: Operations has started using a Drop Point and the Drop Point needs to get added to the map for others' reference. You're not currently at the Drop Point but you are familiar with where it's at. Digitizing is drawing a feature on a map rather than collecting the actual feature in the field.

- Find the TRAINING 2024 Tonto NF IA Field Map. If needed, scroll down in your Maps screen until you hit your groups and find the map in the SW Tonto NF – IA Map Group.
- 2. Tap the TRAINING 2024 Tonto NF IA Field Map to use 3. Tap the plus button to collect a feature. it in online mode.







- 5. Scroll down in the list of feature types and tap on Drop Point.
- 6. A Drop Point will be added at your current location if you have sufficient GPS accuracy
- 7. To move the Drop Point to where you know it to be, pan/zoom to place the crosshairs over that location and then tap the Update Point button.







8. The Drop Point will now appear at the location that you indicated

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- 9. Fill out required attributes for the Drop Point: Incident Name, Point Name, Label or Comment, etc. (for this scenario enter DP-10) and tap Submit
- 10. You've successfully collected a feature in online mode at a location other than where you currently are through on-screen digitizing





CLASSROOM EXERCISE #2 - DOWNLOAD AN OFFLINE WORK AREA

Scenario: A fire is reported near the office, and we are preparing to travel to the reported location. Let's pretend that there is not reliable cellular service near the office, so we need to download our map and basemap to use Field Maps in offline mode. Make sure you have a reliable internet connection (WiFi or Cellular) before completing this exercise.

- Return to your Maps screen in Field Maps and find the TRAINING 2024 Tonto NF IA Field Map. If needed, scroll down in your Maps screen until you hit your groups and find the map in the SW Tonto NF - IA Map Group
- 2. Tap the three dots on the TRAINING 2024 Tonto NF IA Field Map
- 3. Tap Add Offline Area



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4. Change the level of detail to Streets. The level of detail indicates the smallest scale that the basemap will be downloaded at. Using the Levels of detail scale reference on page 2, this means that the smallest scale that your basemap will be downloaded to is roughly 1:10,000



5. Define your offline area by panning and zooming to the general area of the incident. Keep in mind that you'll want to see transportation access routes to the incident so don't zoom in too close. Additionally, you will only be able to collect data within the offline area. You cannot modify the shape of the offline area. If you need to create a different offline area, you can download a new offline area and have multiple offline areas.



6. Tap Download Area



7. Wait for the map to finish downloading

- 8. The map has finished downloading with the progress circle is replaced with three dots. Tap on the map to open it.
- 9. The extent of the downloaded basemap is your offline area. You will only be able to collect data within this area. You've successfully downloaded a map for offline use







CLASSROOM EXERCISE #3 - COLLECT FEATURES IN OFFLINE MODE BY DIGITIZING

Part A: Collect a feature in EVENT POINT

Scenario: You need to map an approved staging area at a known location. After you collect the feature, you find out that the location of the staging area has been moved and is at a different location.

- With the downloaded TRAINING 2024 Tonto NF IA Field Map still open, tap the plus button to start collecting features
- 2. Scroll through the list of features in the EVENT POINT category and tap the Staging Area feature type.Alternatively, you can filter the list by typing 'StagingArea' in the Filter field
- 3. Pan and zoom to place the feature where you want it on the map







4. Tap Update Point



- 5. Complete required attributes: Incident Name, Point Name, Label or Comment, etc.
- 6. Tap Submit to store the feature internally on your device





- After submitting the feature, you realize the location is incorrect and you need to move the feature. If not already selected, tap the point to select. Tap the Pencil to edit the feature
- 8. Pan and zoom to place the feature in the correct location
- 9. Change the Label or Comment of the feature by tapping on the Comment attribute







10. Tap Update Point and then Submit to store the edited feature internally on your device



11. You have successfully collected an EVENT POINT feature and edited its location in offline mode by digitizing



Part B: Collect a feature in EVENT LINE

Scenario: You've been asked to map a planned fire line along a road that you can see clearly on a basemap.

 With the downloaded TRAINING 2024 Tonto NF IA Field Map still open, pan and zoom to the location on the map where you want to begin digitizing the Planned Fire Line. Tap and hold your finger on the screen at the starting point for the line – Field Maps will drop a pin



2. Tap the plus button next to Collect Here



Scroll through the list of features in the EVENT LINE category and tap the Planned Road as Line type.
 Alternatively, you can filter the list by typing 'Planned Road as Line' in the Filter field



- 4. Pan and zoom to the location on the map where you want the second vertex of the line to be
- 5. Tap Add Point to create the second vertex of the line
- 6. Continue moving and tapping Add Point to add vertices until you have completed the Planned Road as Line







- 7. Complete required attributes: Incident Name, Label or Comments, etc.
- 8. Tap Submit to store the feature internally on your device
- 9. You have successfully collected an EVENT LINE feature in offline mode by digitizing







Part C: Collect a feature in EVENT POLYGON

Scenario: You've got a general description of the extent of the fire and fire managers are asking for a map. Digitize a polygon for the fire perimeter.

2. Tap the plus button next to Collect Here

 With the downloaded TRAINING 2024 Tonto NF IA Field Map still open, pan and zoom to the location on the map where you want to begin digitizing the Fire Perimeter. Tap and hold your finger on the screen at the starting point for the polygon – Field Maps will drop a pin





 Scroll through the list of features in the EVENT POLYGON category and tap the Wildfire Daily Fire Perimeter feature type. Alternatively, you can filter the list by typing 'Wildfire Daily Fire Perimeter' in the Filter field



- 4. Pan and zoom to the location on the map where you want the second vertex of the Wildfire Daily Fire Perimeter polygon to be
- 5. Tap Add Point to create the second vertex of the polygon
- 6. Continue adding vertices until you have completed the Wildfire Daily Fire Perimeter polygon







- 7. Complete required attributes: Incident Name, Label or Comment, etc.
- 8. Tap Submit to store the feature internally on your device
- You have successfully collected an EVENT POLYGON feature in offline mode by digitizing







CLASSROOM EXERCISE #4 – SYNC FEATURES

Scenario: The features collected in exercises 2 and 3 are stored locally on your device. You're ready to send those features to the database and receive any edits that others may have completed in your offline work area.

Make sure you have a strong internet connection (WiFi or Cellular). There are two ways to sync your map. Choose either method to sync your map and features:

Method 1 – Within Map

1. With the downloaded #TRAINING 2023 Tonto NF IA Field Map still open, tap the Sync button



2. Review the features that you created and/or edited and tap sync



3. You have successfully synced your data from within the map



Method 2 – From Map Screen

1. Tap the back arrow to return to the TRAINING 2024 Tonto NF IA Field Map screen



2. Tap the three dots on your Offline Work Area and tap Sync



3. You have successfully synced your data from the TRAINING 2024 Tonto NF IA Field Map screen (Offline Work Areas)



CLASSROOM EXERCISE #5 – MANAGE OFFLINE AREAS

Scenario: You are no longer working on an incident, or you've been assigned to work in a new division in a different area. Note: You can have multiple Offline areas downloaded.

- 1. Return to the TRAINING 2024 Tonto NF IA Field Map screen and tap the three dots on your Offline Work Area
- 2. Tap Remove Area

- 3. Tap Remove when prompted if you're sure if you want to remove the area
- 4. You've successfully removed the offline area used for exercises 2 4

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FIELD EXERCISE #1 – DOWNLOAD AN OFFLINE WORK AREA

Refer to CLASSROOM EXERCISE #2 - DOWNLOAD AN OFFLINE WORK AREA CLASSROOM EXERCISE #2 - DOWNLOAD AN OFFLINE WORK AREA on page 8 and download a new offline work area in the vicinity of the office.

FIELD EXERCISE #2 - COLLECT FEATURES IN OFFLINE MODE USING GPS

Part A: Collect a feature in EVENT POINT

Scenario: You're out on the fire line and encounter a hot spot outside the mapped fire perimeter. Record its location using GPS.

1. Tap on the offline work area that you just downloaded

- Move to the location where you want to record a hot spot point and tap the plus button to collect a new feature
- 3. Scroll through the list of features in the EVENT POINT category and tap the Hot Spot – Spot Fire feature type.Alternatively, you can filter the list by typing 'HotSpot' or 'Spot Fire' in the Filter field







- 4. Complete required attributes: Incident Name, Point Name, Label or Comments, etc.
- 5. Tap Submit to store the feature internally on your device
- 6. You've successfully collected a feature in the EVENT POINT category using GPS

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Event Point Type * Hot Spot - Spot Fire		0
Repair Status No Repair Needed		8
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No		0





Part B: Collect a feature in EVENT LINE

Scenario: Record a road as completed line using GPS in relation to your fire perimeter

- With your offline work area still open, move to the location where you want to start recording a Completed Road as Line and tap the plus button to collect a new feature
- 2. Scroll through the list of features in the EVENT LINE category and tap the Completed Road as Line feature type. Alternatively, you can filter the list by typing 'Completed Road as Line' in the Filter field
- 3. Tap the three dots (More Options) to the right of Completed Road as Line







- 4. Tap Start Streaming to record your GPS track
- 5. If needed, you can combine on screen digitizing with your GPS track to extend the feature (see example below) using your GPS.
- 6. Move along the road to collect it as a feature using your GPS. Tap Stop Streaming to stop recording your GPS track







- Complete required attributes: Incident Name, Label or Comments, etc. and tap submit to store the feature internally on your device
- 8. You've successfully collected a feature in the EVENT LINE category using GPS





Part C: Collect a feature in EVENT POLYGON

Scenario: Record an 'Other' area using GPS in relation to your fire perimeter

- 1. With your offline work area still open, move to the location where you want to start recording an Other polygon and tap the plus button to collect a new feature
- 2. Scroll through the list of features in the EVENT POLYGON category and tap the Other feature type. Alternatively, you can filter the list by typing 'Other' in the Filter field
- 3. Tap the three dots (More Options) to the right of Other



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4. Tap Start Streaming to record your GPS track

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5. Move along the area that is being proposed for burnout operations to collect it as a feature using your GPS



 Tap Stop Streaming to stop recording your GPS track. You do not need to move exactly back to your starting point – Field Maps will close the polygon for you



- 7. Complete required attributes: Incident Name, Label or Comments, etc.
- 8. Tap Submit to store the feature internally on your device
- 9. You've successfully collected a feature in the EVENT POLYGON category using GPS







FIELD EXERCISE #3 – SYNC FEATURES

Refer to CLASSROOM EXERCISE #4 – SYNC FEATURES on page 21 for instructions on how to sync the features you collected in FIELD EXERCISE #2.

FIELD EXERCISE #4 – DEBRIEF FEATURES WITH APPROPRIATE FIRE PERSONNEL

Find your supervisor. Explain to them the data that you collected. How many and what kinds of features? Do any of them need to be edited? Do any of them need explicit approval from other fire staff to be operational? Do they you to collect anything else?

FIELD EXERCISE #5 – DEBRIEF FEATURES WITH GIS Staff

Find GIS Staff. Explain to them the data that you collected. How many and what kinds of features? Does the GIS Staff need to clean anything up? Are any features no longer operational?Do any of the features need to be deleted by the GIS Staff?

APPENDIX A – TROUBLESHOOTING

If you forgot the password to your NIFC ArcGIS Online account

- 1. In a web browser, go to the <u>NIFC Org Support Request</u> form
- 2. Answer all required questions
 - a) For Support Topic select Account: password reset, role change, delete or disable users
 - b) For Details type reset password
- 3. Submit the form. Check your email (the one you set up your NIFC account with) for a link to reset your password.

If you are logged into the NIFC ArcGIS Online Field Maps app, but can't see the TRAINING 2024 Tonto NF IA Field Map

- 1. Contact your local GIS staff
- 2. Tell them your name and position
- 3. Ask to be added to the SW Tonto NF IA Map Group in the NIFC ArcGIS Online organization

If you can't sync your map in Field Maps

- 1. Make sure you have a high-quality internet connection (WiFi or Cellular)
- 2. Restart Field Maps
 - a) Navigate back out to the Maps screen
 - b) Tap the Profile button
 - c) Tap Sign Out
 - d) Confirm that you want to sign out
 - e) Sign In with ArcGIS Online
 - f) Enter your username and password
 - g) Try to sync again

- 3. Restart your mobile device
 - a) Close Field Maps
 - b) Power down
 - c) Power on
 - d) Sign into Field Maps
 - e) Try to sync again
- 4. Contact GIS Staff if you have collected data that will not sync, they can get the data off your mobile device manually

APPENDIX B – HELPFUL LINKS

Fire Situational Awareness

Tonto Fire Dashboard – Summary of current year Tonto Fire Data

FS Tonto Fire/GIS – Sharepoint Site / Need FS Login or FS Network

FTP – Tonto Fuels and General – Contains Fuels and General Maps for Fire Reference

FS Mobile Apps (Avenza) - Sharepoint Site / Need FS Login or FS Network

FTP – Incident Specific Data – Contains incident specific maps for all large Fires

NIFC ArcGIS Online Account Creation – Must have Gov or Fire agency email

NIFC ArcGIS Online Support Request – Request support from NIFC ArcGIS Online Admins

NWCG GeoOps – General Fire/GIS information

US Current Wildfire Activity Web Map – Web map of current Fire activity

<u>InFORM</u>

inFORM Website – Need NIFC AGOL login and access through inFORM to launch application User Guides and Tips

Field Maps

<u>Team 5 Collector Training Videos</u> – Videos display functions from ArcGIS Collector but are still relevant and useful <u>Wildland Fire Resource Advisor Training for ArcGIS Field Maps</u> – Video for collecting features in Field Maps.

USFS GTAC Training Courses – FS Sharepoint site / <u>Need FS Login or FS Network</u> <u>USFS GTAC Training Courses</u> – <u>Calendar</u> <u>USFS GTAC – Field Maps App Data Collection</u>

ESRI Field Maps Training Courses – Need AGOL (NIFC or USFS) Login

ArcGIS Field Maps Quick Reference - iOS and Android