



Getting Started with ArcGIS Field Maps



ArcGIS Field Maps application icon

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2024 Disclaimer: Training techniques or workflows held within are designed as basic job aids. Mobile collection tools and technology used are constantly being improved upon. End users should consult with management for current workflows and standards.

Overview

[ArcGIS Field Maps is described by Esri](#) as an “all-in-one app that uses data-driven maps to help mobile workers perform data collection and editing, find assets and information, and report their real-time locations.”

In short, ArcGIS Field Maps combines helpful features from five (5) other Esri mobile data collection apps – ArcGIS: Collector, Explorer, Navigator, Tracker, and Workforce. Field Maps has the look and feel of ArcGIS Collector and promises to improve upon it. Users of ArcGIS Collector will find it very familiar.

Install the Mobile Application (if needed)

PPQ survey iPads have survey applications, including ArcGIS Field Maps, [automatically installed](#). If you are using a PPQ iPad and do not see ArcGIS Field Maps icon on your screen, please contact CEC IT right away to correct your configuration. You likely need to be added to the “PPQ Only” Active Directory security group.

If you already have the ArcGIS Field Maps application, skip to [Sign In to ArcGIS Enterprise](#)

Be Prepared

You will need to confirm the following in place:

1. A phone or tablet that runs Android or iOS (Apple)
2. A reliable Wi-Fi connection
3. eAuthentication ID/Password
4. USDA-MRP GIS (Portal) account

App Store

ArcGIS Field Maps is available through the App Store for both Android and iOS devices for free. Search by name (ArcGIS Field Maps) and select install or “get”.



Locate “ArcGIS Field Maps” from the list. (**Figure 1**)

Select by tapping the ArcGIS Field Maps icon from the list and select “Install” to install.

Figure 1. ArcGIS Field Maps application icon

If you still need help, open a ticket with CEC IT. (CECHelpDesk@usda.gov or 877-873-0783)

ArcGIS Enterprise (USDA-MRP GIS Portal)

Sign In

Requires Wi-Fi connection and eAuthentication Level 2 User ID and Password.

You will need to sign into ArcGIS Enterprise (USDA_MRP GIS Portal) to locate maps shared with your USDA-MRP GIS Portal user account. Once signed in, ArcGIS Field Maps will retain your sign in for offline data collection.

The MobileLinc authentication option uses an identity established with in the Entrust application to confirm authentication for use of the ArcGIS mobile applications.

Some in PPQ Field Operations are exempt from this option and can enter their eAuthentication user ID and password manually using the Log in with Password option.

If your device is managed by Intune, [contact CEC IT](#) for support in creating that Entrust identity to enable sign in with MobileLinc.

Locate the ArcGIS Field Maps application icon and tap to open it. (**Figure 2**)



Figure 2. ArcGIS Field Maps application icon

Field Maps presents with sign-in options for “Sign in with ArcGIS Online” or “Sign in with ArcGIS Enterprise”. (Red box in **Figure 3**)



Figure 3. ArcGIS Field Maps Sign in screen

On first opening the application, you will have to add the ArcGIS Enterprise URL. Once established, your device saves this as a sign in option. The red box in **Figure 4** indicates a saved URL and the yellow box in **Figure 4** highlights the option to “Specify a New URL”.

Official Data Collection

USDA-MRP GIS Portal URL: <https://maps.mrp.usda.gov/arcgis>

Training Maps and Practice

USDA-MRP GIS Stage portal: <https://maps-stg.mrp.usda.gov/arcgis>

Specify a New URL

If choosing to “Specify a New URL”, this is entered manually using the keyboard. Check it carefully and then tap “Ok”. (**Figure 5**)



Figure 4. Sign in with ArcGIS Enterprise options



Figure 5. Specify a New URL

Next you may be asked to confirm “usda.gov” to Sign In. Tap “Continue”.

(**Figure 6**)



Figure 6. Confirm usda.gov sign in

Again, choose the Enterprise login by tapping on the blue “eAuth Account” button. (**Figure 7**)

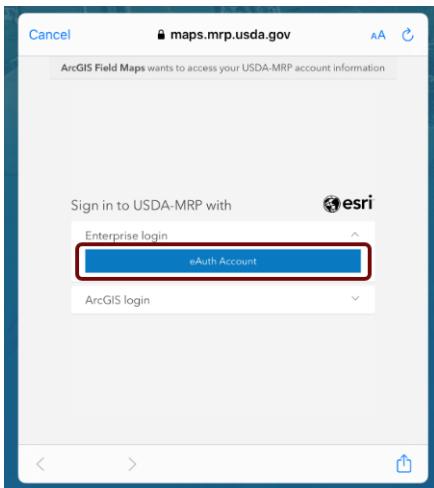


Figure 7. Sign in to USDA-MRP with eAuth Account

Tap to select from the user type options listed:

Customer, USDA Employee/Contractor, or Other Federal Employee Contractor. (**Figure 8**)

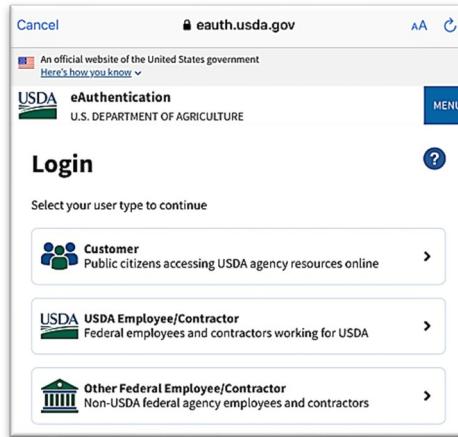


Figure 8. Select eAuthentication User Type

MobileLinc

CEC IT is deprecating the MobileLinc credentialing using the Entrust application. For new or recently re-enrolled mobile devices the Certificate Based Authentication (CBA) process uses the [USDA Work Account](#) sign in option.

Select MobileLinc. (**Figure 9**)

Next select between MobileLinc+Microsoft or MobileLinc+Entrust. Most likely the correct option is: MobileLinc+Entrust (**Figure 10**)



Figure 9. eAuthentication options

Enter your User ID (eAuthentication user name) using the keyboard. Tap Log In with MobileLinc. (**Figure 11**)



Figure 10. MobileLinc Microsoft or Entrust



Figure 11. MobileLinc User ID & Log In

Tap on the banner that descends prompting that “You have pending actions”. This will open the Entrust application for you to confirm the request. (Red box **Figure 12**)

If this banner disappears, open the Entrust application manually. Do not close the ArcGIS Field maps application.

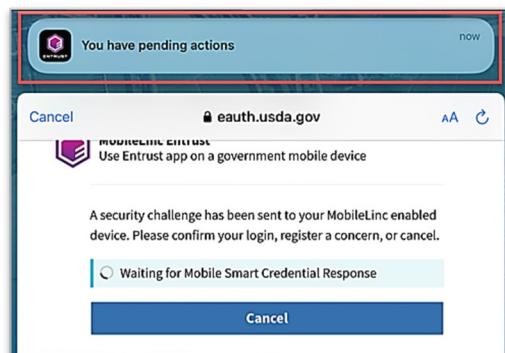


Figure 12. You have pending actions...confirm in Entrust

Once in the Entrust application, you will be prompted to enter the Identity PIN you set when configuring this credentialing method.

Enter your PIN and tap the “Allow” button. (**Figure 13**)

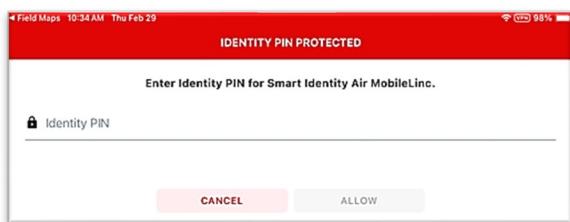


Figure 13. Entrust Identity PIN

Tap Confirm. (**Figure 14**)



Figure 14. Confirm to authenticate

Return to ArcGIS Field Maps.

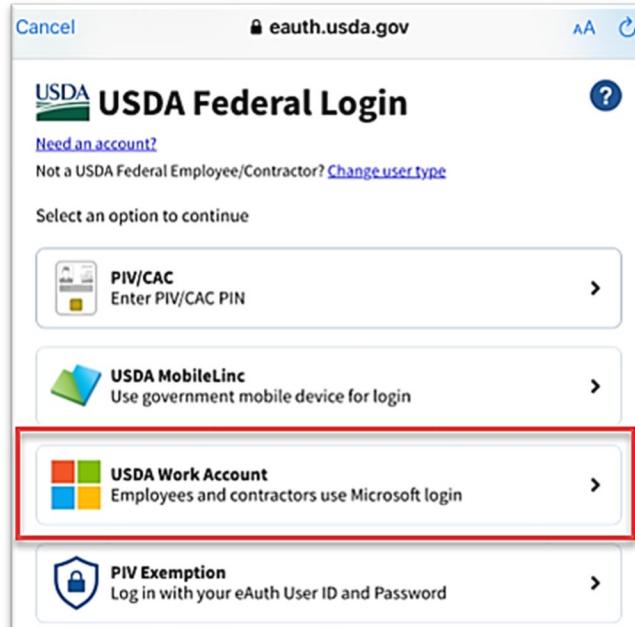
If shown, tap Accept at the U.S. Government information warning message.

Locate your map and begin field data collection!

USDA Work Account

CEC IT is deprecating this [MobileLinc](#) credentialing using the Entrust application. For new or recently re-enrolled mobile devices the Certificate Based Authentication (CBA) process uses the USDA Work Account sign in option.

Select USDA Work Account. (**Figure 15**)



Tap “OK” at the next screen to confirm.

Figure 15. USDA Federal Login

Type in your Microsoft Sign In email. Likely this is something like: First.Last@usda.gov

Then tap “Next”. (**Figure 16**)

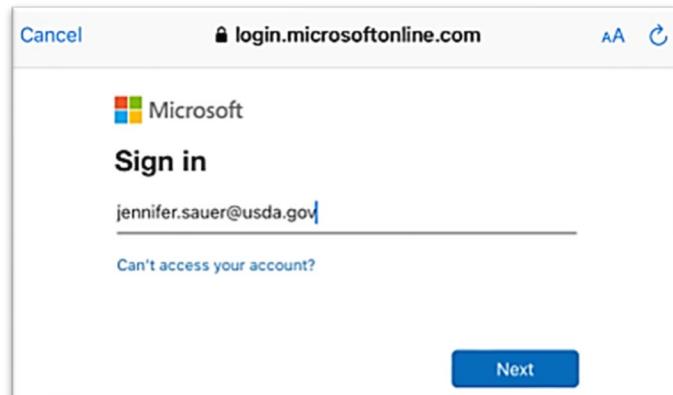


Figure 16. Microsoft Sign in - Email

You may need to tap and scroll to find the certificate listed with your name. Tap to select that line. (**Figure 17**)

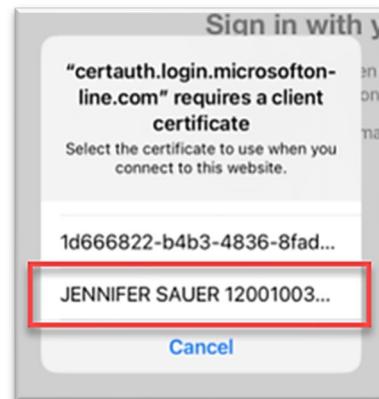


Figure 17. Select the certificate

ArcGIS Field Maps opens to the main map gallery. Locate your map and begin field data collection!

Sign Out

To sign out of any environment, tap the profile icon  on the Maps page in the upper left, scroll down, and tap "Sign Out". (**Figure 18**)

Tap "Sign Out" again to confirm the action. (**Figure 19**)

Then choose "Sign In with ArcGIS Enterprise" to enter the correct URL. For reminders on signing in, see [Sign In](#) section.

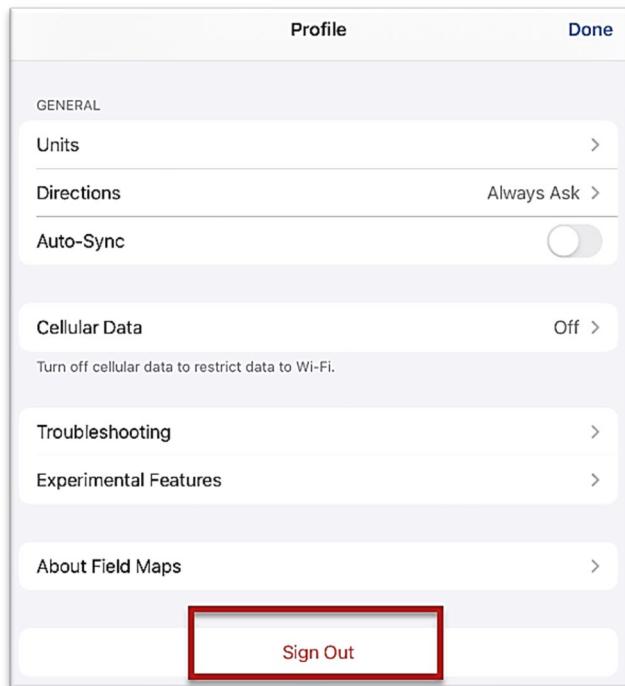


Figure 18. Profile Menu



Figure 19. Sign out confirmation

Maps Landing Page

Once signed into the USDA-MRP GIS portal, a “Maps” landing page similar to **Figure 20** should appear. If you were previously collecting data in a map, Field Maps will try to “remember” this and will open into that map. You will have to tap the back button on the top left of your screen to return to the map landing page view, if desired.

“My Maps” lists maps you have created. There is unlikely to be anything listed for field surveyors.

The “Groups” section indicates groups to which your portal account has been given membership. This means that maps shared to those groups are available for your use in field data collection.

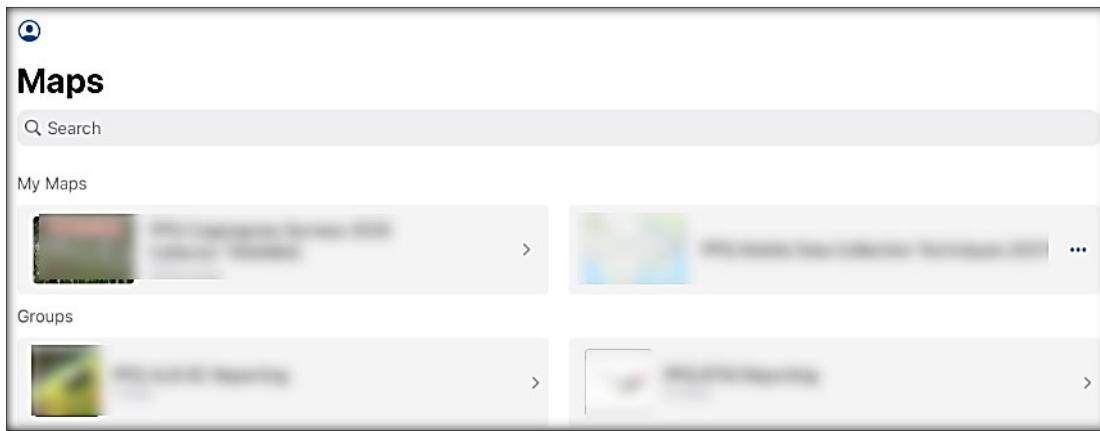


Figure 20. Sample Maps landing page

Profile Icon

The profile icon  in the upper left corner contains additional settings. The gold box in **Figure 11** shows that a user is signed in but does not tell you the URL connection.

When in doubt, [sign out](#).

To see more, tap, hold, and pull your finger tip up on the screen to scroll.

Be sure that both Auto-Sync, (**Figure 21**) and Cellular Data (**Figure 22**) are NOT enabled.

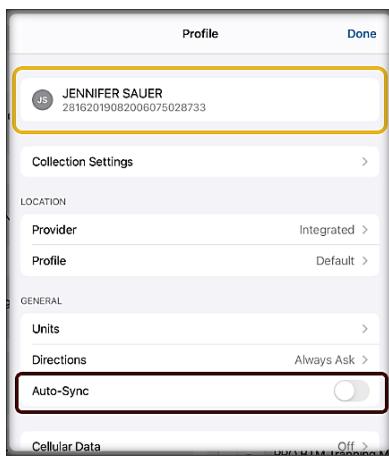


Figure 21. Top half of the Profile menu

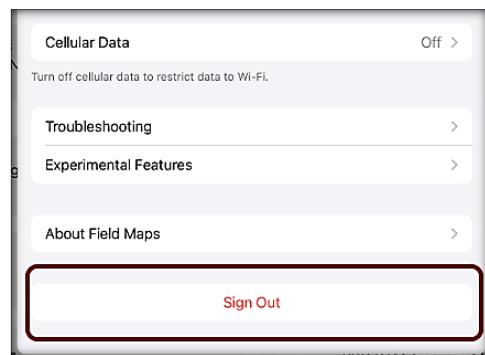


Figure 22. Bottom half of Profile menu

Disconnected Data Collection

The application is specifically designed to operate in **disconnected** mode. An area of interest is downloaded to your device while connected to a Wi-Fi network. Then the device is disconnected from the internet and field data collection is performed. Once a reliable network connection is regained, the data is synchronized with the online map hosted in the USDA-MRP GIS (Portal).

It is common for a pest program surveyor to download a map area for a season/year and continuously use it. This means *daily* sync of data collected in the morning (before start) to pull new data into the map view and in the evening (end of daily data collection) to push out data collected for the day on that device. This workflow, using the same downloaded map over a period of time, allows the user to cycle through steps 3-6 throughout a data collection season.

The diagram below (**Figure 23**) represents the workflow of the disconnected mode concept.

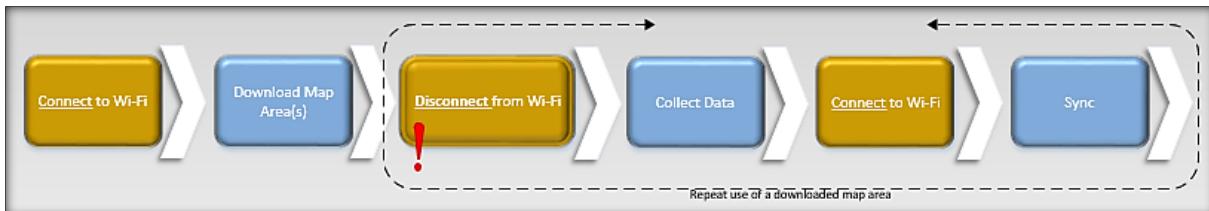


Figure 23. Disconnected Workflow Diagram

Download Map Area

Requires Wi-Fi connection.

Maps are shared to Groups. If your portal user account is added as a member to a group, you will find this group or groups listed on the Maps landing page.

From the Maps landing page, tap the appropriate Group card (named “PPQ {PestAbbrev} Surveyors”. Within the group, locate the map card. Look for the map name given to you. If you have not downloaded a map, the map card contains an overflow menu represented by three blue dots. See the red arrow in **Figure 24**.



Figure 24. View of map card within a group

Tap the three blue dots to reveal the overflow menu. Next tap “Add Offline Area”. (**Figure 25**)

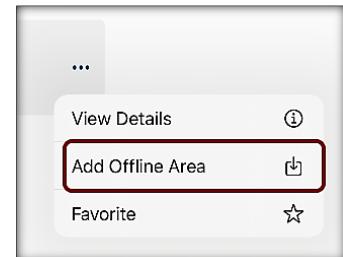


Figure 25. Overflow menu

The Add Offline Area defaults to the set map extent and basemap type. A name is assigned automatically (Area 1, etc.) which can be changed once the map successfully downloads. The Level of detail starts at the highest level of detail: **Room**. This is nearly always too much detail. (**Figure 26**)

Steps to downloading a map area:

1. **Change level of detail**

Tap the blue word “Room” and choose the level decided by your supervisor...usually “Streets” or lower.

2. **Center on location** assigned

Tap the grey airplane at the top right corner of the map to center on your current GPS location.

OR

Use two fingers to zoom in or out. Tap, hold, and drag to center the map as you wish.

Wait for the map to display completely.

3. **Tap “Download Area”**

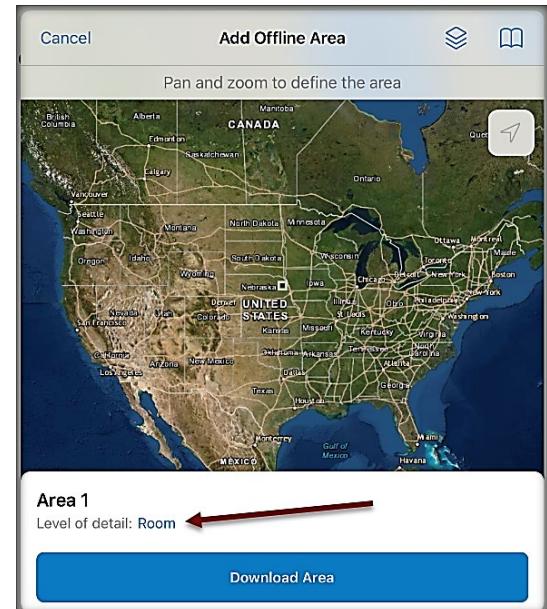


Figure 26. Add Offline Area

The new offline map card is created with a progress message – “Downloading” and a blue progress circle updating the status of the download. (**Figure 27**)

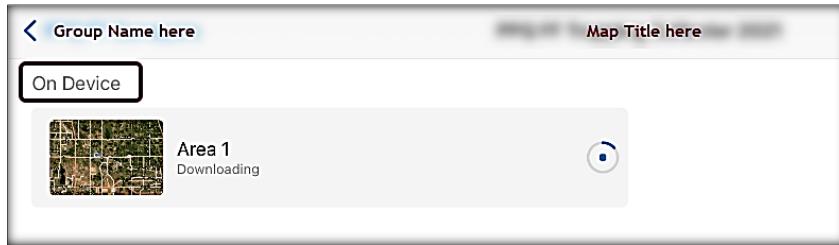


Figure 27. Map area download in progress

Once the download is complete, the progress messaging updates to indicate the size of the download and when it was downloaded to the device. The progress bar circle changes to an overflow menu. (**Figure 28**)

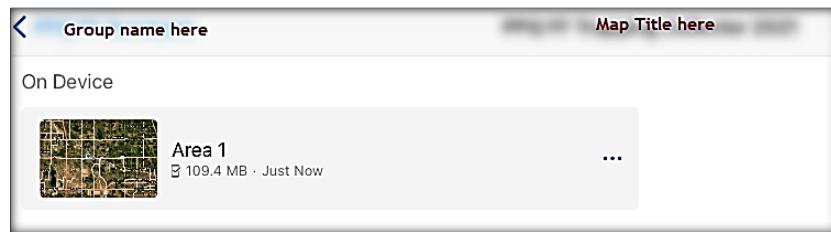


Figure 28. Map area download complete

It is highly recommended that you rename downloaded map areas. Use the naming convention established by your supervisor.

To rename a map area, tap the overflow menu on the map area card, tap “Rename” and type in a new name. (**Figure 29**)

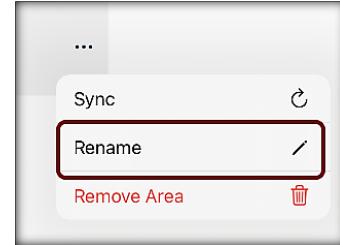


Figure 29. Downloaded map area overflow menu

Never assume you are prepared for offline data collection. **ALWAYS** perform a few tests in the parking lot before you go. For a sample set of steps to test your readiness, see the next section on [Before You Go](#).

Before You Go

Be sure all is ready for field data collection in disconnected mode **before** you leave.

Turn on the iPad and enter the passcode to unlock the screen.

1. Connect to a strong Wi-Fi or a cellular network.
2. Open ArcGIS Field Maps application (**Figure 30**).
3. If not already signed in, tap Sign in with ArcGIS Enterprise and sign in.
(See steps in the [Enterprise Sign In](#) section below if needed.)
4. Once signed in, locate and open the appropriate offline map area.
(Check with your supervisor to confirm whether a predefined map area is available to you. If not, you must download a map area. Refer to the [Download Map Area](#) section above.)
5. Perform a sync to pull in other's data collections and test your connection/log ins. (Refer to [Daily Data Sync](#) section below)
6. From the Settings application on your iPad, turn Wi-Fi OFF and Location Services ON.



Figure 30. ArcGIS Field Maps application icon

Parking Lot Test:

With no Wi-Fi connection, open the offline map area, zoom in/out, and tap the add data button to be sure the data form appears to the left with GPS reading in blue (not red). Tap "Cancel". Then "Discard" that point and head out to the field!

If you do not see your map or it does not open as expected, you are not signed in or the offline map download was unsuccessful. Go back inside, connect back to Wi-Fi, and try again.

Collect

To collect data in ArcGIS Field Maps, tap the plus sign  located in the lower right corner of the downloaded map area.

Main Data Form

Depending on the developer's configuration of the application, you will either be presented with an initial choice, such as trap type or location status, (**Figure 31**) and then directed to the data form or directed straight to the data form (**Figure 32**).

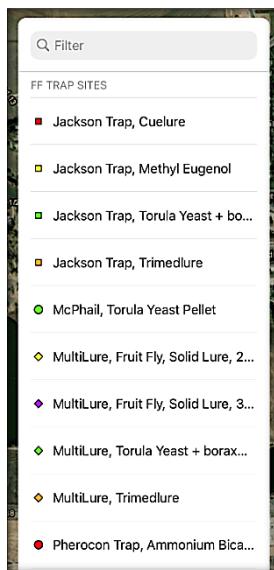


Figure 31. Sample initial question asks for Trap Type.

Figure 32. Sample data form

Defaulted inputs will automatically generate as the Trap – Lure field did in the sample data form above. These default fields may or may not be enabled for editing.

Data fields that are required have a grey asterisk * after their name.

Fields allowing photo attachments, QR code or barcode scans contain the barcode icon  within the data entry box. (**Figure 32**)

Fields enabled with a dropdown list contain a list icon  within the data entry box. (**Figure 32**)

Related Tables

Depending on the developer's configuration, additional forms, or related tables, may also require data entry. Most typically, the use of a related table records multiple visits to the same site but is also used to record things like samples collected at that site.

The main data form must be completed first, then the user can either continue the data entry needed in the related table. If returning to the site from a previous visit, first select the location symbol from the map to open the main data form and locate the related table to enter new data. The related table icon link  is found within the main data form.

Editing Collected Data

Within ArcGIS Field Maps, edits can be made to the data entered in the main data form and related table entries collected to your downloaded map area.

Main Data Form Edits

1. Tap the location symbol on the map to open the main data form.
2. Tap the edit icon  to open the data form for updates.
3. Make the changes needed and tap **Submit** once complete. This update is seen as a new edit and will not be seen in the hosted map until the data sync is performed.

Related Table Edits

1. Tap the location symbol on the map to open the main data form.
2. Tap the related table icon  or scroll down to tap the related table by name. Then choose the table activity from the list to open the activity form.
3. Tap the edit icon  near the bottom of the related table entry to open the activity form for updates.
4. Make the changes needed and tap **Submit** once complete. This update is seen as a new edit and will not be seen in the hosted map until the data sync is performed.

It is also possible to edit multiple entries at once using the overflow menu's [Edit Multiple](#) tool.

Daily Data Sync

Requires Wi-Fi connection.

****Sync your data first thing in the morning AND last thing at night – DAILY!**

This both pushes your data collection out and brings in other edits to your map.

As data is collected, even in disconnected mode, ArcGIS Field Maps tracks these and indicates the need to sync your data with a dot on the outgoing arrow of the sync icon. See **Figures 33 and 34** to see the indicator added to the sync icon showing pending edits saved to the device.



Figure 33. Sync icon before data entries



Figure 34. Sync icon after data entries

To perform a data sync, tap the sync icon. A window appears displaying information on edits waiting for sync. Be sure the Auto-Sync button is disabled as seen in **Figure 35**.

Review the list of edits. Edits from the list may be selected for review and further editing by tapping to open the corresponding data form. For more details on editing in ArcGIS Field Maps, see the [Editing Collected Data](#) section.

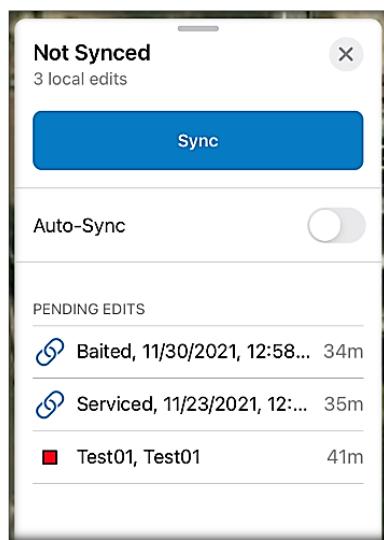


Figure 35. Sample Sync window for review

Extra Features

With a downloaded map area open, there is a small menu of features across the top. Having discussed the sync icon in the previous section, this section continues the overview of features available within the map in this menu. (**Figure 36**)



Figure 36. Downloaded map area top ribbon menu

Layers

Default layers are turned on or enabled automatically but, depending on the developer's configuration, additional reference layers may be available.

The Markup layer is typically on by default and can be toggled off here. The Markup layer is listed among "On Device Layers". This layer is saved only to the device and not viewable by anyone else unless shared. For more details, see the [Markup](#) section.

To view available layers, tap the layers icon  and tap to toggle layers on or off, as desired.

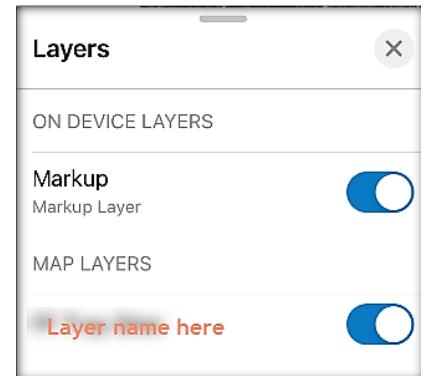


Figure 37. Layers menu

See **Figure 37** for a sample Layers menu with all toggled to "on".

Search

When [connected to Wi-Fi](#), the search tool allows the user to search a global database for addresses or attributes from the data in Field Maps. Depending on the developer's configuration, the search tool may or may not be configured to search for features on the map while disconnected.

To use the search feature, tap the magnifying glass icon  and type your search into the box provided. (**Figure 38**)

Feature search is limited to the extent of the downloaded map area. The location can also be added to My Places (tab under [Bookmarks](#) in the overflow menu).

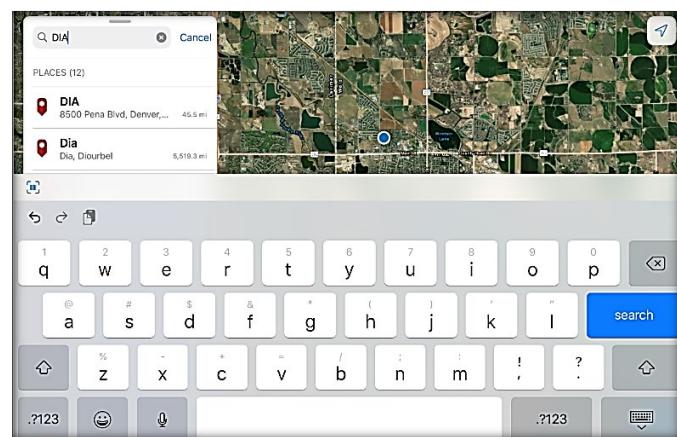


Figure 38. Search tool

Map Overflow Menu

The overflow menu is accessed by tapping on the three blue dots all the way to the right on the downloaded map area top ribbon. (See the red box in **Figure 39**) These features are not critical to data collection but may prove helpful.

See **Figure 39** for the list of overflow menu options.

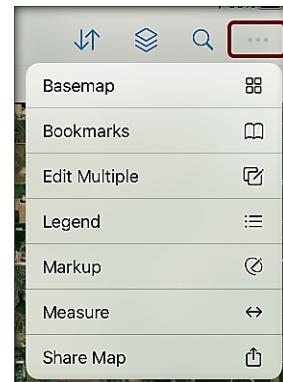


Figure 39. Overflow menu options

Basemap

Depending on the developer's configuration, additional basemap options may be available. To change the basemap, tap the overflow menu, basemap, and then choose from the offered basemaps.

Bookmarks

Appears on all maps.

The Default Map Extent bookmark is standard. Depending on the developer's configuration, additional bookmarked locations may be available. This is rarely done for national maps and users will be informed if location bookmarks are created to aid in that particular data collection effort.

To utilize a bookmark, tap the overflow menu, bookmarks, and then choose the location. If the location is within the downloaded map area, your map will pan and zoom to that location.

My Places

Appears only on your device.

Unique to the user creation and saved to the device are "My Places".

The bookmarks tool has a tab labeled "My Places". (**Figure 40**)

Select this tab to view the list of locations saved. To pan and zoom to a saved place, tap the location name from this list.

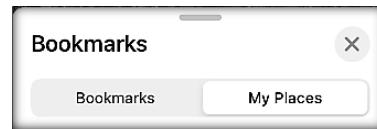


Figure 40. Bookmarks tool tabs - Bookmarks & My Places

There are at least **three ways to add a location** to My Places for later use:

Pin the location:

To create a location pin, tap and hold until the compass crosshairs appear. Then lift your finger. A Dropped Pin form appears with options to Collect Here, get Directions, Compass, or Add to My Places.

Search and "Add to My Places":

To use the search feature, tap the magnifying glass icon and type your search into the box provided. From the search results, tap the correct location listed and then tap Add to My Places from the options provided.

From within an existing data form:

Tap to select the location symbol from the map, tap the overflow menu at the bottom of the data form or scroll down to locate and tap to select Add to My Places.

There are at least **two ways to remove a location** saved under My Places as well:

From the map pin:

From the map view, tap the pinned location to open the menu and choose "Remove from My Places".

Overflow Menu - Bookmarks:

Tap the overflow menu, choose Bookmarks, select the My Places tab, tap the location listed to remove, and choose "Remove from My Places".

Edit Multiple

This tool allows for multiple features to be edited at the same time. This tool can be both helpful and dangerous. When multiple features require the same edit (Survey date, for instance), this feature allows for a batch edit. Selection of multiple features for edits increases the margin for error. Users should exercise caution using this tool.

To edit multiple features, first (carefully) select the features to edit on the map. Then tap the overflow menu, tap Edit Multiple and use the data form to perform the edits. As with any data collection, the edits must be performed with care, the **Submit** button tapped and a sync performed.

Legend

The legend provides the context for symbology of the features on the map. This depends on requests made by program managers and can vary. A trapping survey, for instance, may choose to symbolize a location by whether the trap is considered active or inactive. Another trapping survey may symbolize trap locations by the trap type used.

To view the legend, tap the overflow menu and tap Legend.

Markup

Appears only on your device. **This layer is not an official data collection layer!**

In ArcGIS Field Maps, a Markup layer is automatically added, and visibility can be toggled on or off using the [Layers](#) menu. Use caution adding notes to this layer. Any Personally Identifiable Information (PII) added here is your responsibility to protect.

To access and add to the Markup layer, tap the overflow menu and tap Markup. The top ribbon indicates that you are in the Markup layer with ribbon options to clear all, add multiple markings, share the layer, or leave (Done). (**Figure 41**)

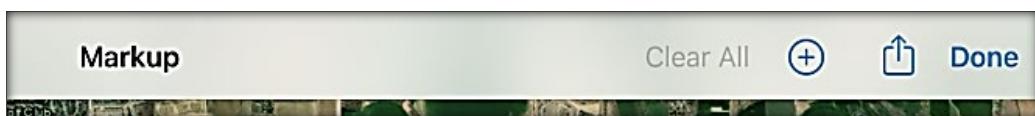


Figure 41. Markup layer menu

To begin adding to the Markup layer, use your fingertip to “draw” on the screen.

Once a point or shape is drawn, a few more options appear. With that shape selected, the top ribbon offers a trash can to delete, an option to change the pen color, a target to add a point, and “Done” to exit. (**Figure 42**)



Figure 42. Markup options

An automatic note card is also generated in a minimized box on the lower left. Tap to add a label and/or notes, if desired. (**Figure 43**)

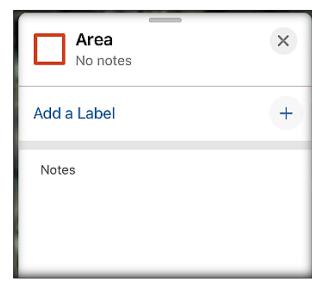


Figure 43. Markup drawing card

To deselect and add another markup, tap on the map away from the shape, tap the plus button on the top right ribbon, and use your fingertip to “draw” on the screen.

There are lots of options to sharing the markup layer whether the entire map’s markup or a simple screen shot for later. To share the Markup layer, tap the share icon found in the top ribbon.

When done adding to the Markup layer, tap “Done” on the top right of the screen.

Measure

This tool is only as precise as your fingers and zoom levels but can be very handy in calculating rough estimated distances either as a line or area (square) measurement in a variety of units (feet, yards, miles, acres, meters, kilometers, and hectares).

To use the measure tool, tap the overflow menu and tap Measure.

The Measure ribbon menu offers line or area options. The unit measurement can be changed by tapping the blue wording. The first point can be centered on your GPS location by choosing the person with the crosshair icon. You can go back a step if collecting a complex shape, tap the trash can to start fresh, or tap Done when you want to exit the tool entirely. (**Figure 44**)

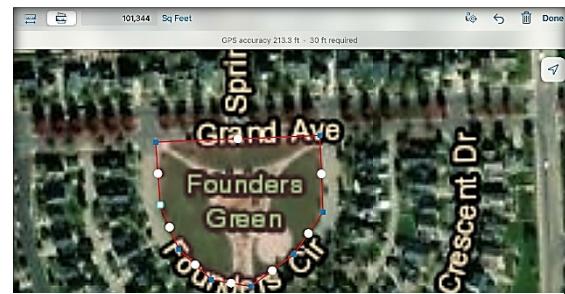


Figure 44. Sample view of area in sq ft using measure tool

Share Map

This tool does not function under APHIS security limitations.

Getting Help

APHIS PPQ

Be as specific as possible. Include screenshots, error messaging, any troubleshooting you have performed, and indicate the type of device (iPad, laptop, phone, etc.).

For APHIS PPQ users, if you are having issues with the iPad, laptop, Wi-Fi settings, or issues dealing with installing software, open a ticket with CEC IT. CECHelpDesk@usda.gov or 877-873-0783

If you need technical support or help using the ArcGIS Field Maps application, follow this hierarchy:

1. Your supervisor
2. Local GIS Specialist that supports your area
3. Email WebGIS.Connect@usda.gov

Cooperators & Other Nonfederal Users

Contact your State Plant Health Director's office for assistance.

All Training Resources

As new applications and programs are supported, newly created training documents and self-paced training videos are shared on the APHIS public facing website:

Mobile Data Collection Tools

Bookmark this site. Visit often. Provide feedback and ideas freely.