

Collecting Data

PDFMaps (Avenza) - Exercise 01 (v03)

This exercise is to train you on how to collect data on your mobile device using PDFMaps (Avenza).

WATCH OUT: Android devices can be vastly different from these notes. This was tested on an LV V10 (Lollipop) and Google Nexus 6 (Lollipop)

Preparation:

Download and install the Avenza PDFMap application for your Apple, Android, or Windows (beta) device. This will require internet access and charges if on a data plan. NOTE: these were developed using iOS, testing on Droid found many differences. Where possible these differences are noted. This is not a perfect step by step document – it is a start!

- Apple device: <https://itunes.apple.com/ca/app/avenza-pdf-maps/id388424049?mt=8>
 - More help here: <https://www.pdf-maps.com/about-pdf-maps/>
- Android device: <http://www.pdf-maps.com/>
 - More help here: <https://www.pdf-maps.com/support/android/>
- Windows device: <https://www.microsoft.com/en-US/store/apps/PDF-Maps-BETA/9NBLGGGZQ7PV>
 - More help here: <http://www.avenza.com/resources/blog/2015/03/10/pdf-maps-windows-phone-beta-available> BETA Version available now. No steps provided in this exercise.

Load Exercise Map & Dining Points Placemarks

This requires the use of the **Getting Started** map that comes by default with PDFMaps. If this has been deleted it can be reinstalled by:

- iOS: go to **Settings** and using **Re-import Getting Started map**.
- ANDRIOD got to **Settings -> Help->Re-import "Getting Started" map**

Obtain the file named **Exercise_AvenzaPDFMaps_SacramentoNone.pdf** – this is a map using NAIP Imagery for the Sacramento/McClellan area – intended use is only to support data collection. Those not in the area can use this and add placemarks OR use a map of their area, from a past incident, etc to use. The GPS location doesn't need to be on the map to support this exercise.

Obtain the file named **Placemarks_Dining_Points.kmz** from the materials for this exercise. Install it using one of the following methods:

- iTunes – load directly to the iPad by connecting to a computer, opening Apps, open PDFMaps, then drag & drop the kmz file. *See additional notes below to install on application.*
- DropBox – not setup for this exercise – just noting this is an option.
- URL – not setup here – if you have URL to a map on NIFC FTP this can be copied here to load these files.
- QRCode – the data is on the NIFC FTP site these are the QR codes to obtain. Be patient with PDFMaps QR code reader, it can be very finicky especially when on a computer screen (hint print out QR code) – be sure to import these correctly!
 - iOS has a QR code reader imbedded in it – this works well or you can load from a QR reader app.

- PDFMaps on Android does not have a QRcode reader – if this option is desired here are some recommended tools to download from the GooglePlay store:
 - QR Code Reader by Scan
 - QR Code Reader by TWMobile
 - QR Droid Code Scanner by DroidL.a
 - And many more....
- Microsoft Mobile – if you have one let me know what you are using!
- Web links on next page.

Import the Map to Maps



Exercise - Sacramento/McClellan Map

Import Placemark KMZ to Layers



Placemarks Dining Points

Map Link:

http://ftp.nifc.gov/gsc/GISS_Intermediate_2016/Exercise_PDFMaps_Avenza/Exercise_AvenzaPDFMaps_SacramentoNone.pdf

Placemark link:

http://ftp.nifc.gov/gsc/GISS_Intermediate_2016/Exercise_PDFMaps_Avenza/Placemarks_Dining_Points.kmz

FOR iOS: Once the two files are loaded to the mobile device (NOTE: steps may be different due to different devices and what iOS version is installed) – these must be imported on the device.

- **Open PDFMaps** application on the mobile device.
- **Import Map:**
 - **Select Maps** icon on the bottom left of the application – by default PDFMaps opens here.
 - **Select +** icon in the upper right corner of the application
 - **Choices here:**
 - **Select From iTunes File Sharing** – this assumes the file is downloaded or available on computer. Click to highlight the Sacramento Map, click Import on the bottom of this window, wait for the map to import.
 - **Select From QR Code** – if internet is available use this to download the map.
- **Import KMZ:**
 - **Select Layers** icon on the bottom of the application.
 - **Select +** icon in the upper right corner of the application
 - **Select Import from KML**
 - **Choices here:**

- **Select From iTunes File Sharing** – click to highlight the placemarks Dining_Points, click Import on the bottom of this window, this will import quickly – only 4 placemarks here.
- **Select From QR Coe** – if internet is available use this to download the KMZ

FOR ANDROID: Once the two files are loaded to the mobile device (NOTE: steps may be different due to different devices and what Droid version is installed) – these must be imported on the device.

- **Import Map:**

- **Choices here:**

- **Connect to Android** – if there is no internet load the PDF map to the Downloads folder or any suitable folder on the mobile device. When map is on device click on + select From Device Storage, select Back to Internal Storage, navigate to folder, select PDF and import will start.
- **Open QRCode Reader** application on the mobile device. Once the map is scanned the ANDROID device may ask “Complete action using” options provided may include PDFMaps, Chrome, etc. depending on what is installed on the device. Select PDF Maps if offered, if not store on local device.

- Verify the Exercise_AvenzaPDFMaps_... is available along with the Getting Started map (if not load this – instructions at the top of this exercise)

- **Import KMZ:**

- **Choices here:**

- **Connect to Android** – if there is no internet load the PDF map to the Downloads folder or any suitable folder on the mobile device.
- **Use the QRCode Reader** application again and scan the QR code to download, open in Chrome with Just Once.

- Move to importing – next step

Importing Placemarks –

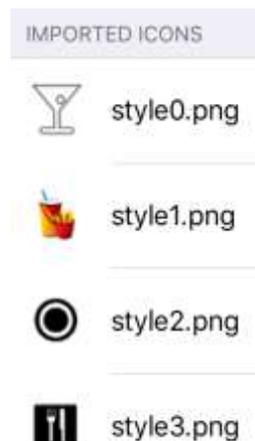
The KMZ placemarks must be imported correctly. PDFMaps has default icons that can be used, but for this exercise we will load the Dining placemarks.

Default PlaceMarks



Dining Placemarks

Adult beverage, fast food, other, restaurant –
(working on fixing names...)



FOR iOS - Import placemarks:

- **Open Maps**
- **Select Getting Started map** – if this is missing go to Settings and Re-import Getting Started Map. *WHY? If you add placemarks that are not on the current map they may not import correctly. This map covers the world so all placemarks will be imported.*

- **Load placemarks** – click the icon  on the lower right of the Getting Started map.
- **Import placemarks** – using the  tool on bottom right of the window that opened. On the Getting Started map under the blue GPS location should be a group of new icons.

FOR ANDROID - Import placemarks – remember these icons will be different on different Android devices.

- **PDFMaps opens Maps** when first opened
- **Select Getting Started map** - if this is missing go to Settings and Re-import Getting Started Map *WHY? If you add placemarks that are not on the current map they may not import correctly. This map covers the world so all placemarks will be imported*
- **Load placemarks** – click the  on the toolbar at the top of the application.
- **Import placemarks** – click the  tool at the top of the application and select **From Device Storage**. Click Back to Internal Storage to get to the storage on the mobile device. Navigate to the directory where the KMZ file is stored. Click on the **Placemarks_Dining...** The placemarks should be loaded. On the Getting Started map on top of the blue GPS location should be a group of new icons. These are the new placemarks. Return to Map Features using the back arrow  on the Getting Started map under the blue GPS location should be a group of new icons.
- **NOTE:** For some Android devices the default folder may need to be set to access the new icons. Do this by holdin down on the Dining_Points.kmz and then setting the folder.

Test Installs – of map and placemarks on the mobile devices:

Create a new placemark to make sure everything is loaded.

FOR iOS – test installs:

- **Use Getting Started map** – if not open, from Maps window select the Getting Started map
- **Click Getting Started map** – to open the map
- **GPS on indicator** – the blue dot will indicate your GPS is working and on – it should be in the correct location, if not reboot device.

- **Location icon**  - by default the gray bullseye (location icon) will center on the GPS location (blue dot), this can be moved by panning the map. This must be centered on the location the placemark will be dropped.
 - **Offset location** – pan the map and center location icon
 - **Return to GPS** – use the  to recenter the location icon over the GPS location.
- **Add a placemark** – when the location icon is in the correct place then click  to add a place mark. By default this will be placed at where the location icon is: 
- **Modify placemark** – click on the placemark Info bubble, in the placemark window try the following:
 - **Title** – change this to represent the placemark (restaurant name, etc.)
 - **Icon** – select this to change the icon to a more representative icon – NOTE if you are missing the Dining placemarks they were not imported correctly – return to import.
 - **Description** – provide additional information on the location
 - **Photos** – add photos (more than one can be added – NOTE watch space on mobile device)
 - **Delete** – use the trash can at the bottom
 - **Export** – single placemark export is possible here. as well as copy, open in Google Earth, etc. – NOTE options here will depend upon what is installed on your mobile device.
- **Close placemark window when done** – this can be edited at any time.
- **Close Getting Started map** – once this is closed there will be a new Layers file, click on the Layers button and explore Layers to understand how placemarks are linked to maps

FOR ANDROID – test installs – remember these icons will be different on different Android devices.

- **Use Getting Started map** – if not open, select Maps icon at the bottom of the PDFMaps application
- **Click Getting Started map** – to open the map
- **GPS on** – the blue dot will indicate your GPS is working and on – it should be in the correct location, if not reboot the mobile device.
- **Location icon**  - by default the gray bullseye (location icon) will center on the GPS location (blue dot), this can be moved by panning the map. This must be centered on the location the placemark will be dropped.
 - **Offset location** – pan the map and center location icon
 - **Return to GPS** – use the  to recenter the location icon over the GPS location if panning was used.
- **Add a placemark** – when the location icon is in the correct place then click  to add a place mark. By default this will be placed at where the location icon is: 
- **Modify placemark** – click anywhere on the placemark bubble, in the placemark window try the following:

- **Placemark #** - this is the **Title** – change this to represent the placemark (restaurant name, etc.)
 - **Description** – provide additional information on the location
 - **Photos** – add photos (more than one can be added – NOTE watch space on mobile device)
 - **Location** – this is populated by PDFMaps
 - **Delete** – on the toolbar at the top use the trash can icon 
 - **Select ATTRIBUTES** edit pencil  to edit the placemark and set default icon.
 - **Placemarks Set Default Icon** – select this to change the icon to a more representative icon –
 - NOTE if you are missing the Dining placemarks they were not imported correctly – return to import.
 - Individual placemarks can be changed when in Edit Map Features by clicking the icon  (top right) Change  tool. This opens the Choose an Icon window. Select the icon desired here by clicking.
 - Default placemarks are set by folder – this may be a useful strategy for collection. Try it out!?
 - **Current Folder** – set this here
 - **Tracks & Lines** – set default color here
 - **New Attribute** – add attributes here
 - **Delete** – use the trash can at the bottom
 - **Export** – single placemark export is possible here. as well as copy, open in Google Earth, etc. – NOTE options here will depend upon what is installed on your mobile device.
 - **Select ATTRIBUTES** the folder icon  to create a new placemark to a folder
- **Close placemark window when done** – this can be edited at any time.
 - **Close Getting Started map** – once this is closed there will be a new Layers file, click on the Layers button and explore Layers to understand how placemarks are linked to maps
 - **NOTE:** For some Android devices the default folder may need to be set to access the new icons. Do this by holdin down on the Dining_Points.kmz and then setting the folder.

FIELD ASSIGNMENT - Collecting Data:

Assignment – collect all of the dining locations that you visit and create placemarks for these.

- **FOR iOS:** devices with cell phone contract the GPS is enabled and will collect even when there is no cell service. iOS WiFi only devices will need an external GPS antenna to support collection (unless you hack your iOS device).
- **FOR ANDROID:** is this the same or is the GPS on? Feedback welcome!

Optional Assignment – collect GPS tracks – see **Other things to play with** below.

Exporting Data:

Placemarks can be exported from the current map (all placemarks) or by individual or groups of placemarks (through placemark window). This step will be exporting all of the placemarks from a map.

NOTE: Internet access is required to send the exported data to someone. Export will store the data on the mobile device – watch the sizes. Exported files can be downloaded using cable, Bluetooth, AirDrop, etc.

CAUTION: Large file exports and lack of space on the device may crash it. Exported

RECOMMENDATION: export as a backup procedure

FOR iOS - Export:

- **Open map with placemarks to export** – use the tool  to access all of the placemarks. Note number of placemarks in the map. To export all stay here and click the  export icon to export all.
- **Export Settings Options** – select settings as needed – explore others as well!
 - **Filename** – this can be changed – default is the map name.
 - **Send To** – this uses email to send the KML file – other options include Dropbox, iTunes File Sharing, and AirDrop (Apple) – others may be available on other mobile devices.
 - **FORMAT** – default option is KML – other options include CSV and GPX – NOTE only KML includes photos.
 - **Track Export** – default is As Track – other option is As Line. NOTE: track is more accurate when viewed in Google Earth.
 - **Data** – default should be All Features – others include Schema Only and Custom which allows the user to select all or any combination of points to export.
 - **Media** – default is No Image – must be set if the photos are to be included – size setting allowed – select size based on available internet bandwidth and data plan.
- **Click Export** –
 - **(SELECTED FORMAT) to Email** – email client will open on mobile device fill out as needed
 - **(SELECTED FORMAT) to iTunes Sharing** – the file will be accessible through iTunes
 - **(SELECTED FORMAT) to DropBox** – depends on DropBox being available. Must be setup prior to export.

FOR ANDROID – Export – remember these icons will be different on different Android devices.

- **Open map with placemarks to export** – use the tool  to access all of the placemarks. Note number of placemarks in the map. To export all stay here and click the  export icon to export all.
- **Export Map Features** – all placemark folders will be available here. If export is selected here all will be exported. One placemark folder or even features in a folder can be exported – test this out.
 - **Filename** – this can be changed – default is the map name.
 - **FORMAT** – default option is KML – other options include CSV and GPX – NOTE only KML includes photos.
 -
 - **Send To** – Device Storage is the default, Email and DropBox are other options.

- **Track Export** – default is As Track – other option is As Line. NOTE: track is more accurate when viewed in Google Earth.
- **Export visible only:** an option to test.
- **Click Export**
- **Export Schema Only** – test this out – symbol icons get exported, but there seems to be a lot of issues with this. If icons are needed Lorri is developing these to share.

Importing to ArcGIS:

How the data was exported will determine how the data is imported to ArcGIS. Any of the 3 types provided (KML, CSV, GPX) can be imported into ArcGIS. This is not an extensive step-by-step process – see the ArcGIS Help for further instructions. Other tools such as ETGeo Wizard and xTools can also handle importing these formats:

NOTE: the only format that brings all of the fields and photos out of PDFMaps is KML/KMZ – none of the other formats provide a complete export of the contents.

- **Example KML to (OUTPUT METHOD)** – RECOMMENDED – open KML in Google Earth to validate export – pictures are available here by double clicking on icon. *KML file INCLUDES: Icons, Descriptions, Photos, and Locations. Elevation not found. Not everything imports. PROJECTION: GCS_WGS_1984*
 - Obtain KML file – move to GIS workspace – rename as needed
 - Methods available:
 - **ArcGIS** – search for KML – use the KML To Layer (Conversion) tool – enter information requested – DO NOT check Include Ground Overlay – see ArcGIS Help for more. Sometimes this doesn't seem to work – open and close ArcGIS to reload, when it works it is great – creates a GDB and LYR file. Photos do not import here. *INCLUDES: Icon (in LYR file), Shape (PointZ), Icons, Name, BeginTime, and Locations. Photos and Descriptions not found. Elevation in PointZ.*
 - **xTools** – Import Data From KML – this creates a SHP and LYR files. Photos do not import here. *INCLUDES: Icons (in LYR file), Name, and Locations. Description and Elevation not found.*
 - Others are available are not explored here.
- **Example GPX to (OUTPUT METHOD)** – *PROJECTION: GCS_WGS_1984*
 - Obtain GPX file – move to GIS workspace – rename as needed
 - Method available: **ArcGIS** – search for GPX – use GPX To Features (Conversion) – enter information requested – NOTE none of the symbols come through. *INCLUDES: Location, Name, Description (odd output here), Type (WPT), Time, and Elevation (but unpopulated).*
 - Others are available are not explored here.
- **Example CSV to (OUTPUT METHOD)** – *INCLUDES: Location, Name, Description (odd output here), Type (WPT), Time, and Elevation (but unpopulated). PROJECTION: GCS_WGS_1984*
 - Obtain CSV file – move to GIS workspace – rename as needed
 - Method available: **ArcGIS** – search for CSV – use Make XY Event Layer, defaults will work. *INCLUDES: Location, Name, Latitude, Longitude, Northing, Easting, Description, and Date/ Time. No Elevation.*
 - Others are available are not explored here.

Review of output formats (not fully inclusive):

- **KML** – includes all collected elements from PDFMaps
- **GPX** – includes significant elements from PDFMaps – missing photos, icons, and description (odd at best).
- **CSV** – includes significant elements from PDFMaps, even some not found in KML – missing photos and icons.

Other things to play with (Optional):

There are many more things to work with in the PDFMaps Application here are some to explore further using Maps

Tools  including:

- Measure – measure distance or area
- Record GPS Tracks – Record movements as GPS tracks - Exporting tracks vs. lines – KMLs exported as Tracks (vs. Lines) overlay the Google Earth terrain more accurately than Tracks exported as lines.
- Find Coordinates – Search by coordinates
- Open in Google Maps – Open current view in Google Maps (must be installed on mobile device)
- Plot Photos – add geotagged photo placemarks

PENDING - Placemarks and how to make them – more to come on this!

For any other questions, please contact:

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