

Data Dictionary Exercise

Purpose: To learn how to set up a Data Dictionary (essentially an electronic form) on for use on your Juno3 device. With this electronic form you will then verify (ground truth) features you digitized from Imagery.

Tools: ArcMap, ArcCatalog, Pathfinder Office.

Result: Use the skills for this exercise with practice data in your Project area to verify your work.

Data: \Skills\DataDictionary (on shared drive in Skok 35)

In this exercise you will only be verifying a subset of feature for the Walkable Areas and Poles data layer (due to time constraints) but the process could be applied to all features and layers.

In the examples below, we use the names **landcover** for the Walkable Areas layer, and **other_features_pt** for the poles or grates data layer, as different students will have used different names for their instances of these layers. Please just substitute your names when reading this example.

Our basic goal is to visit features in the field and either collect or verify attributes. This often happens in that it is most efficient to digitize the boundaries and locations of features from aerial images, but we need to visit them in the field to collect all the attributes. We'd also use the field logging tools when updating existing data, e.g., after storm damage, or new construction.

The basic steps here are to

- 1) identify the feature locations we're going to review (these could be points or polygons, we'll demonstrate with points within the polygons, and you can do the same for light or grate points in this exercise),
- 2) add the attributes we're going to modify,
- 3) create a "data dictionary" that helps us collect the data, and
- 4) transfer the data dictionary and data for testing to the field logger, in our case, a Juno.
- 5) go to the field and verify your features, updating/adding attributes
- 6) download the data from the Juno to your computer
- 7) print a map of verified features, and turn it in with your data.

You'll need to do this twice:

- 1) First points for the polygon landcover layer (either centroids or new digitized points in a new layer you create), and
- 2) a points data layer, selected from the poles or grates data layers, as specified for the graduate and undergraduate versions of this class

You need to export a point for each polygon in the **landcover** layer, it is easiest to use the Arc Toolbox → Data Management → Feature to Points tool, and then export a shapefile.

Begin by adding four new fields to the **Landcover** file in ArcMap, in Tables, then Add Field. Add the fields *Date_Verified (date)*, *Ver_Comment (text, 50)*, *Infiltrate (text, 30 spaces)*, *Verified (text, 1)*. For **Other_features_pt** only create *Date_Verified (date)*, *Ver_Comment (text, 50)* and *Verified (text, 1)*.

Example of the Shapefile for Landcover with the newly created fields:

OBJECTID *	SHAPE *	MATERIAL	ORIG_FID	Date_Verified	Ver_Comment	Infiltrate	Verified
1	Point	<Null>	4	<Null>	<Null>	<Null>	<Null>
2	Point	<Null>	5	<Null>	<Null>	<Null>	<Null>
3	Point	<Null>	6	<Null>	<Null>	<Null>	<Null>
4	Point	<Null>	7	<Null>	<Null>	<Null>	<Null>
5	Point	<Null>	8	<Null>	<Null>	<Null>	<Null>
6	Point	<Null>	9	<Null>	<Null>	<Null>	<Null>
7	Point	<Null>	10	<Null>	<Null>	<Null>	<Null>
8	Point	<Null>	11	<Null>	<Null>	<Null>	<Null>

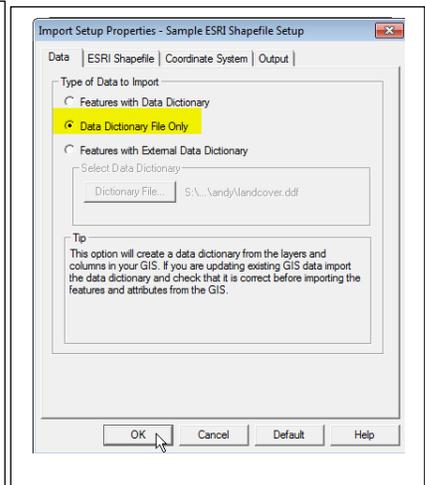
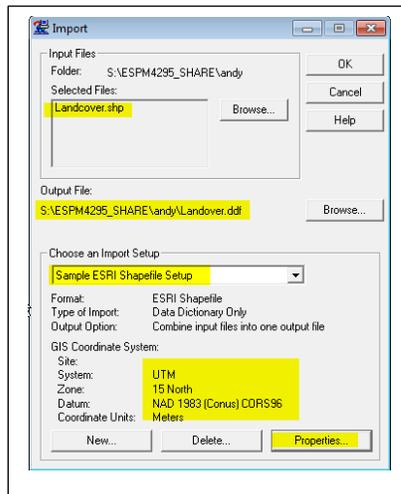
Example of the Shapefile for Other_features_pt:

OBJECTID *	SHAPE *	Pole_type	Date_Verified	Ver_Comment	Verified
1	Point	sign	<Null>	<Null>	<Null>
2	Point	<Null>	<Null>	<Null>	<Null>
3	Point	<Null>	<Null>	<Null>	<Null>
4	Point	<Null>	<Null>	<Null>	<Null>
5	Point	<Null>	<Null>	<Null>	<Null>
6	Point	<Null>	<Null>	<Null>	<Null>
7	Point	<Null>	<Null>	<Null>	<Null>
8	Point	<Null>	<Null>	<Null>	<Null>

Now watch the video on the Basic Data Dictionaries on the course website. This shows how to create and update Data Dictionaries.

Note: we will be 1st using our Landcover or other_features_pt files as “schema” for your dictionary. Then (2nd) We modify the empty dictionary then (3rd) we import the data with the modified dictionary.

Start PFO, and create a Data Dictionary (to be used in concert with your data when verifying).

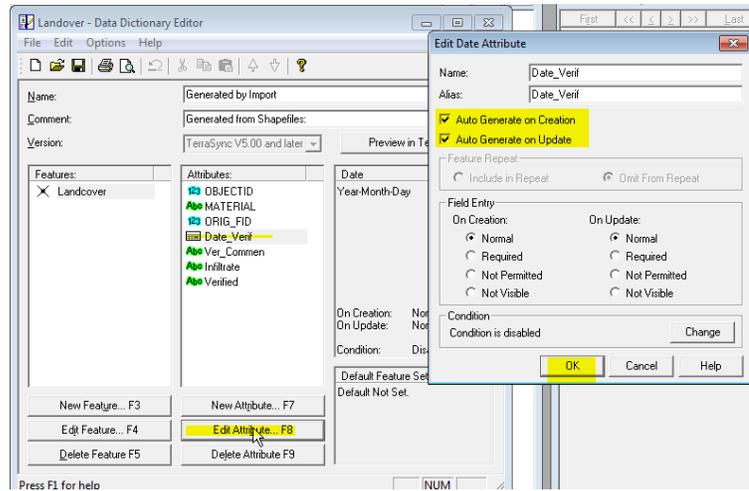


Use the Utilities → Import and select Data Dictionary File only. As shown at the far right panel.

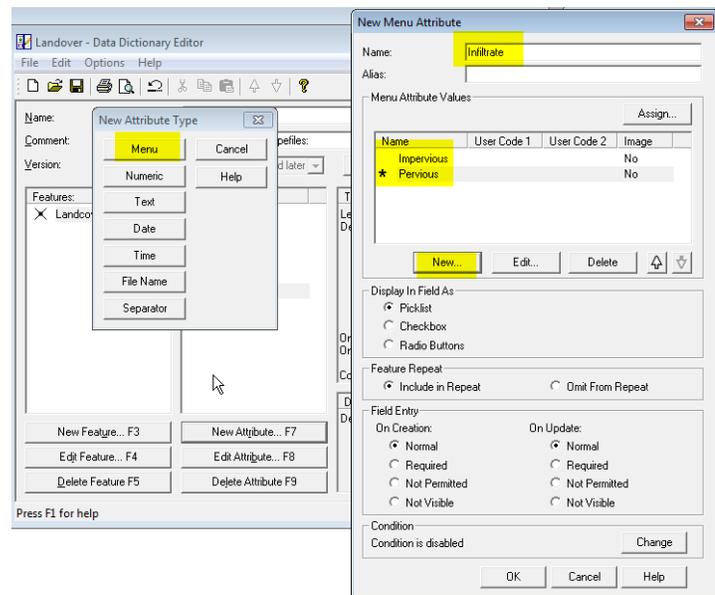
Select OK to begin the Import process. (watch what you name output and where you put it; you will need this later).

Next, open Utilities → Data Dictionary Editor, File, Import from Data File, then select the **Landcover** you just imported/created. (Note if you see a warning about “This data dictionary is an older version....” answer Yes to upgrade.)

The data dictionary editor lets you add features, set constraints on the type and range of data entry, and automatically add or update features. At right we show a setting that auto generates date values when you update the feature. When you are check a feature, it enters the date automatically into the attribute.



Now add the “drop down or menu” choices for Infiltrate and Verified. To do that you have to change the Verified and Infiltrate (note the field names might be shortened due to system limitations). Delete the Infiltrate attribute and create a NEW ATTRIBUTE with the same name Infiltrate (text, length 30). For the New Attribute Type select MENU and use the New Menu Attribute window selecting NEW and add “Impervious” and “Pervious” as the Attribute Values. Select Ok and Close.

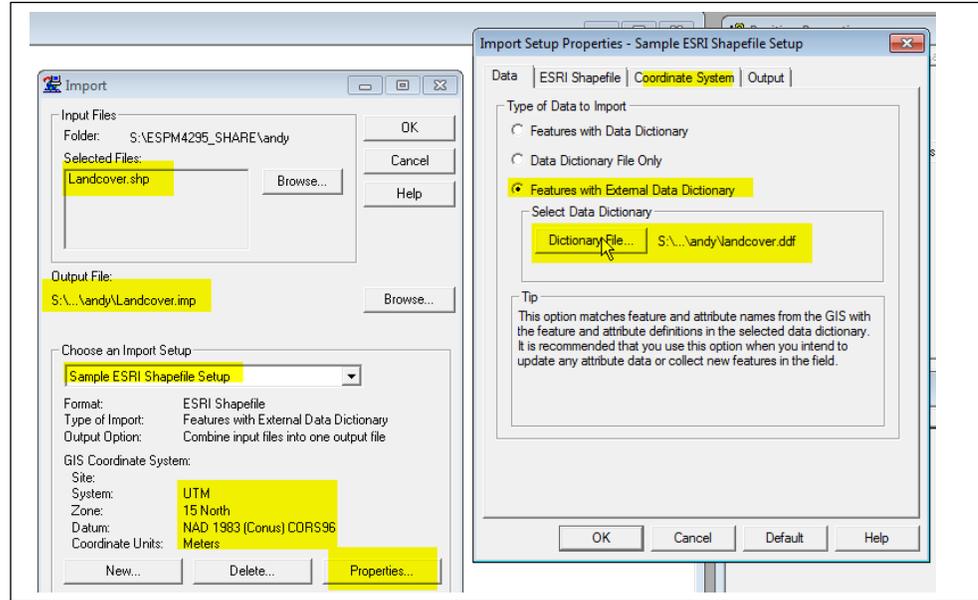


Do the same for Verified. Delete the existing Verified and replace it with a New Attribute named Verified with a New Attribute Type of “Menu” and the Menu Attribute values of “Y”, “N” (default).

SAVE this Data Dictionary (remember it is EMPTY Landcover.ddf right now).

Now Use the PFO Utilities → Import function to load data from the **Landcover** shapefile merging it with your modified empty Data Dictionary.

Utilities→Import →
 Properties→Data
 →Features with
 External Data
 Dictionary (see figure
 right).
 Also check to see if
 you have the correct
 Coordinate System.

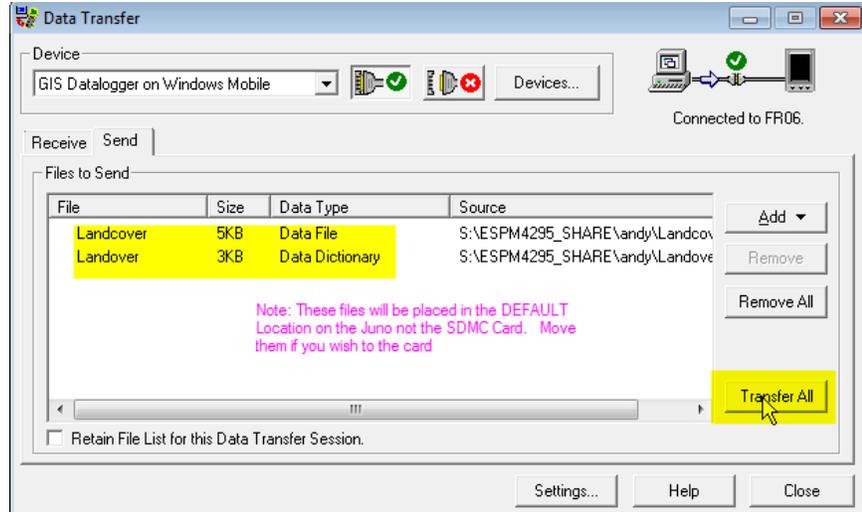


The files you now have on your \Share folder are:

1. Landcover which is now a **.imp** file
2. Landcover data dictionary file which is now a **.ddf** file

Use the PFO Utilities→Data
 Transfer to load the Data
 Dictionary (.ddf) and the
 Data (.imp) to the Juno3.

Remember to SEND.



IMPORTANT

Repeat all these steps to for your **other_features_pt** data class. Remember you don't need an Infiltrate field.

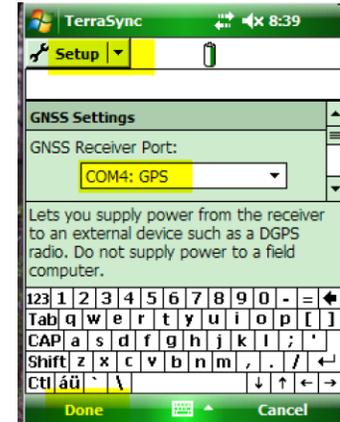
Field Checking

Take the Juno3 to your study area

Start Terrasync, and select the Internal GPS on Settings by choosing COM 4 Port in Terrasync. You don't need to use the most accurate GPS, we're only getting close to the features, and collecting attributes. You just have to make sure you're at the correct feature.

Verify your sample data in field. That means visit at least 20 features in each of your data layers, and update the point file for that feature. Add the attributes you've specified in the data dictionary.

After you've collected all your field data, return to the lab and export the file to a shp or geodatabase file. You do not need to differentially correct your data; this exercise is just for verification.

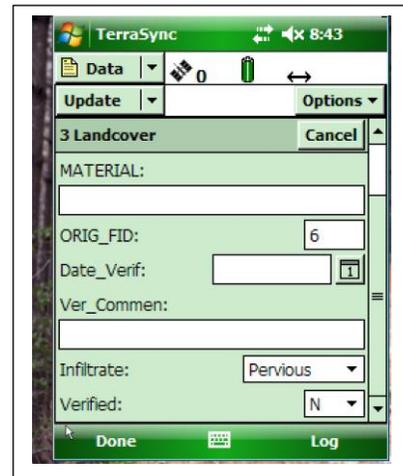
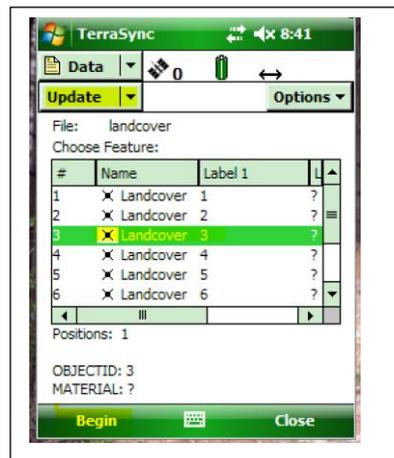


We're only scratching the surface of data dictionaries and field data collection and verification. Many large organizations have workflows for checking out data sets, editing/updating them in the field, and then submitting the changes to the primary database. We've done just a part of that, but it should give you some idea of how the tools may be used.

Create a map of your verified points, and turn it in with the shapefiles, .IMP & .DDF files via Moodle.

NOTES:

To use the two EXISTING files (*Landcover* or *other_feature_pt*) on the Juno3:



Here is where you will enter the correct information in the Ver_Comment field if upon inspection the Landcover is incorrect. Use Infiltrate for noting Pervious or Impervious surface, date and Y/N for the verification.

REMEMBER to click DONE when a point is verified and CLOSE your "Rover" file when done.

If you wish to see where this point is located Use the Map

Or **OPTIONALLY** use Options→ Set Target and use Navigation.

