

Referencing Parcel Centroids to the NHD using HEM Tools

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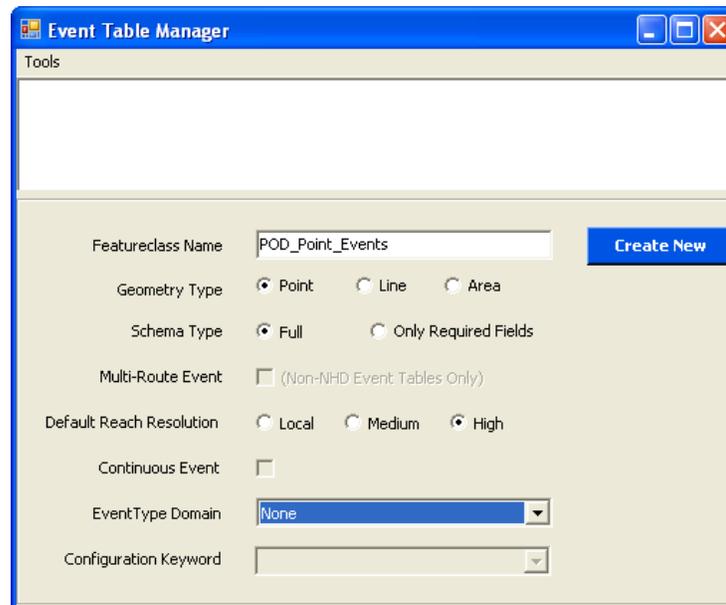
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SETUP

1. Install HEM Tools (\\HEM_Tool_Training\HEM_2_2a_Test_Version) if it is not available.
2. Start ArcCatalog.
3. Add the HEM Toolbar to ArcCatalog (View -> Toolbars -> Hydro Event Management Tools).

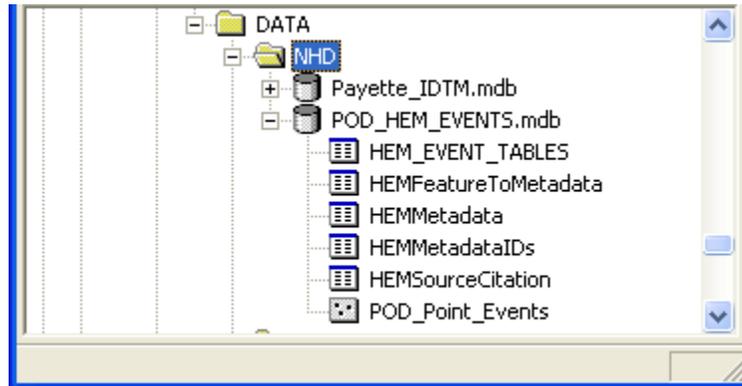


4. Create new empty personal geodatabase on your hard drive and call it POD_HEM_EVENTS (or you can pick a different name)
5. Single click the POD_HEM_EVENTS personal geodatabase you just created in the table of contents, and then click the Event Featureclass Manager button  on the HEM Toolbar.
Note: Dialog will be blank
6. Using the Event Featureclass Manager (Tools -> Add New), create an events feature class. Name it. The rest of the settings should be similar to the dialog below. Click "Create New".



7. Set the spatial reference
 - a. This will open the spatial reference dialog box.
 - b. Import the coordinate system of the NHD Flowline. The coordinate system should match the system of the layer/network you are referencing to. Next through the defaults (2 next, 1 finish).

8. Close the Event Table Manager
9. Refresh (F5 or View>Refresh) and look at what you just created:



10. Close ArcCatalog
11. Start ArcMap and load the Hydro Event Manager toolbar. (View>Toolbars)
12. Add Data
 - a. The Entire NHD Database.

Note that the NHD database **must have a geometric network**.

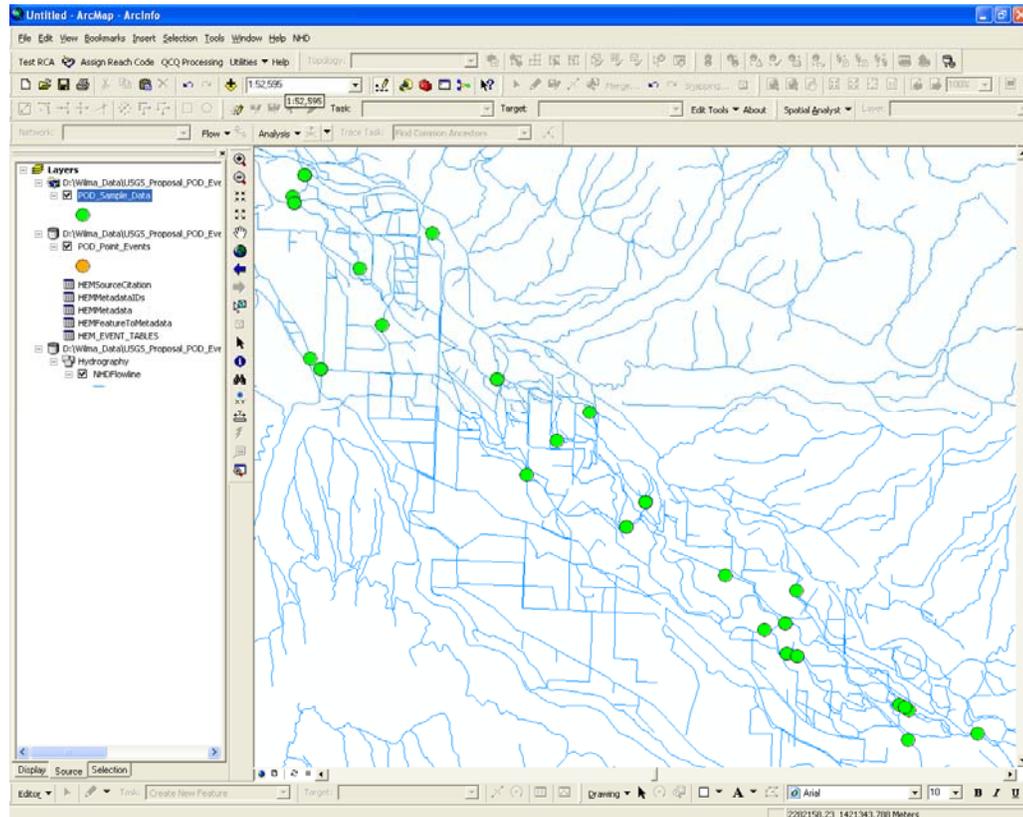
When adding the NHD Database, you may see the dialog box



Say OK

- b. Point Data you wish to reference to the NHD.
 - c. The Events feature class and tables you just created.
13. Click to the Display tab in the Table of Contents. Turn off and group NHD layers that are not helpful with referencing. (Usually, the layers that are useful are the NHD flowline and the Hydro_Net_Junction layers.)
14. Adjust the symbology of the layers added.

15. Label the NHD Flowline with the GNIS name. Label the Point Data with attributes that can help you reference it.



16. You are able to transfer one attribute from the data point shapefile to the event database. If there is not a unique value attribute field already in the data point shapefile, create one.

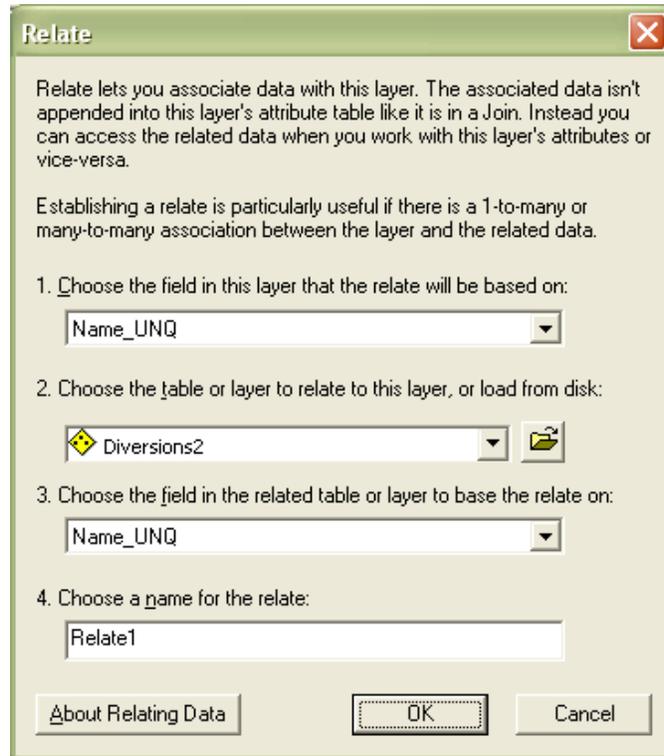
- Open the point shapefile attribute table
- Options>Add Field
- Name the field Name_Unq, type:Text, length: 50
- Calculate the field with a unique identifier. One way is to concatenate Name with the FID or ObjectID.
- Close the attribute table

17. Open the Point_Events attribute table:

- Options>Add Field. Name the field Name_Unq, type:Text, length: 50 or match the name, type and length of the existing unique attribute in the point shapefile.
- Options>Add Field. Name the field SelectTol, type: Long Integer, length: 0.

18. Set up a Relate from the Point_Events attribute table.

- a. Options>Joins and Relates>Relate



- b.

c. Relate the 2 unique fields together. The layer selected in step 2 is the point data.

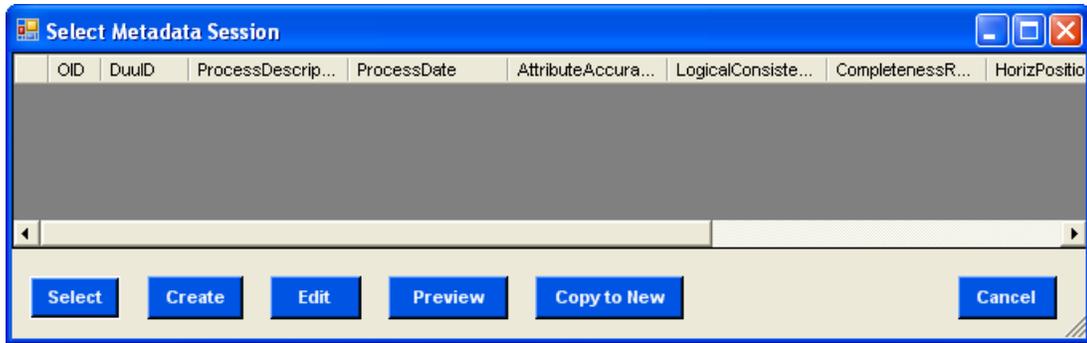
d. OK

e. Close the attribute table.

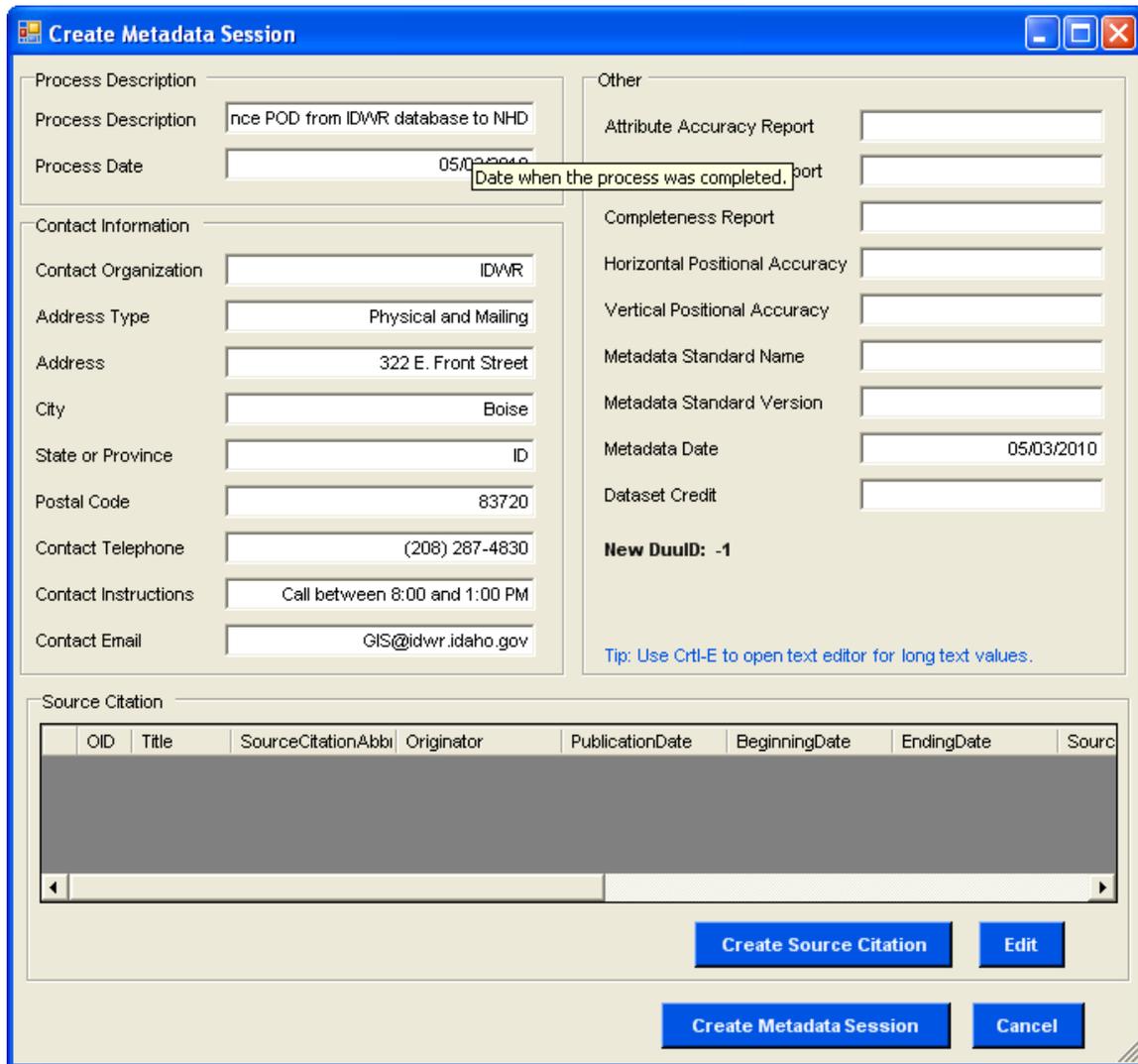
19. On the Editor toolbar, Editor > Start Editing. Select the Personal Geodatabase that contains the Event tables you set up earlier in ArcCatalog.

20. The Select Metadata Session dialog box may appear. If it doesn't, on the HEM Toolbar > Edit Tools > Metadata > Start Session

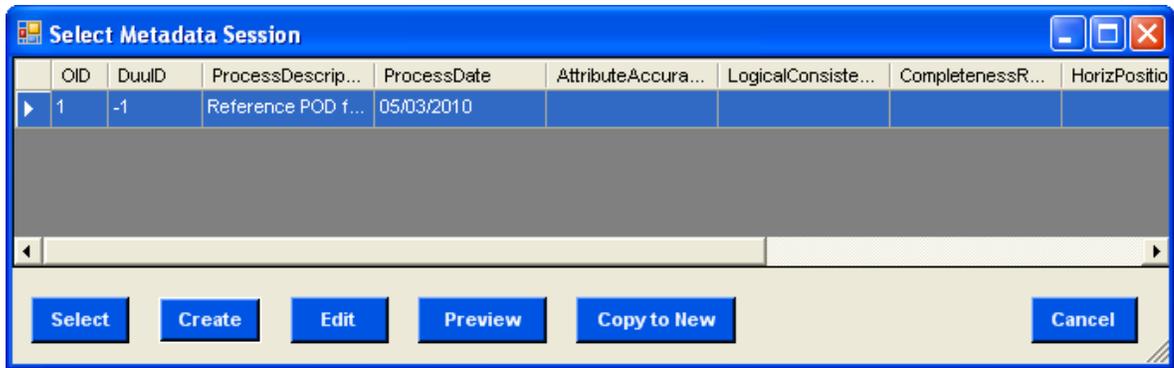




21. Click on Create Button
22. Type in metadata information:



23. Click Create Metadata Session.



24. Make sure the Metadata session you selected is highlighted. Click Select.

25. You are now ready to start creating Events!!

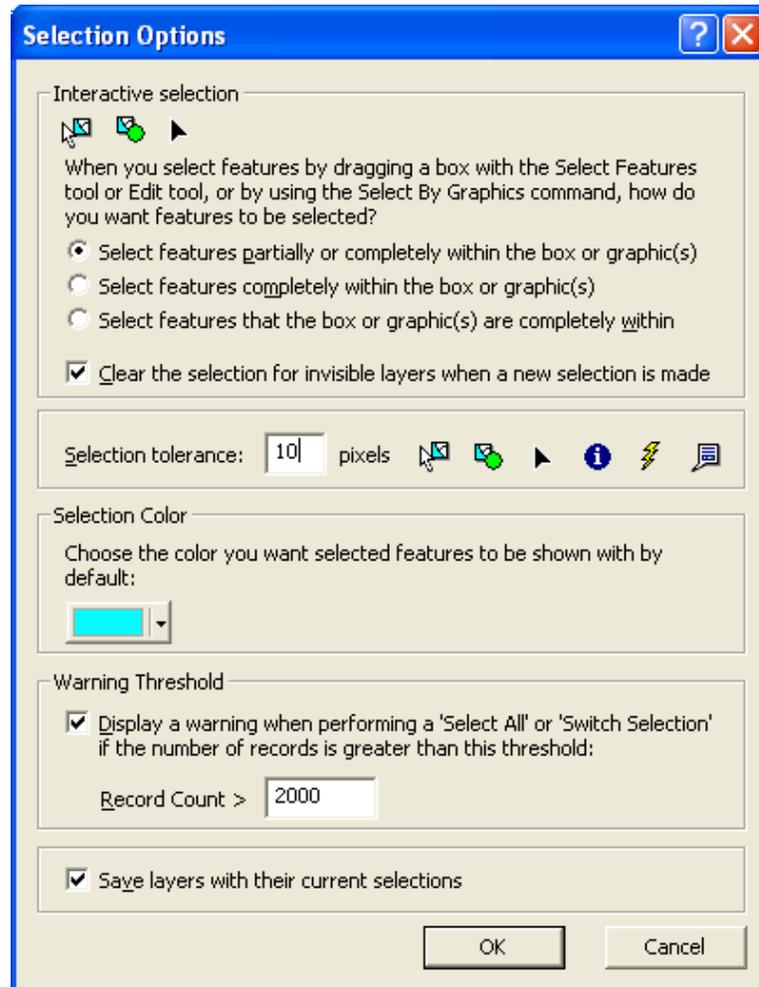
CREATING POINT EVENTS FROM A POINT FILE

If your ArcMap project, Point Events database, and metadata have already been set up; Open ArcMap, Editor toolbar, Editor > Start Editing. Make sure your HEM toolbar Target is the Point Events layer. HEM Toolbar > Edit Tools > Metadata > Start Session. Highlight the existing Metadata record, click Select.

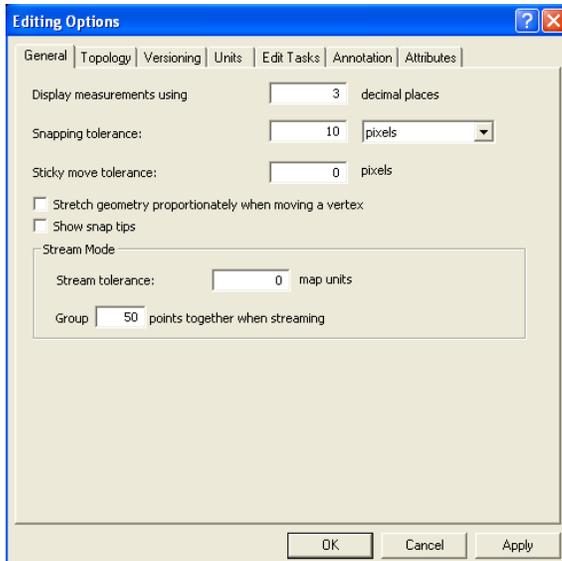
1. On the HEM toolbar, set Task to Create Point Event and the Target to Point_Events:



2. Go to Selection > Options (on main menu near the top of your screen) and set Selection Tolerance. Set this value to 10 pixels. Click OK. You do not need to change this value during different iterations.

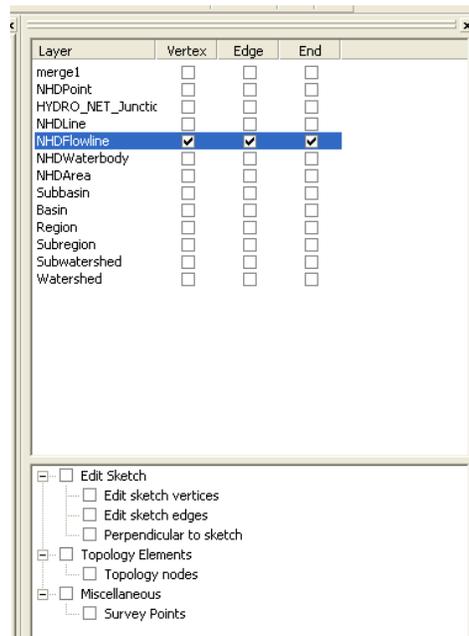


3. On the Editor Toolbar, go to Editor > Options. Set Snapping Tolerance to 10 pixels on the General tab. Click OK. You do not need to change this value during different iterations.



4. Set the Snapping Environment

- a. Editor toolbar, Editor > Snapping
- b. Make sure that Vertex, Edge, and End are checked for NHD Flowline.

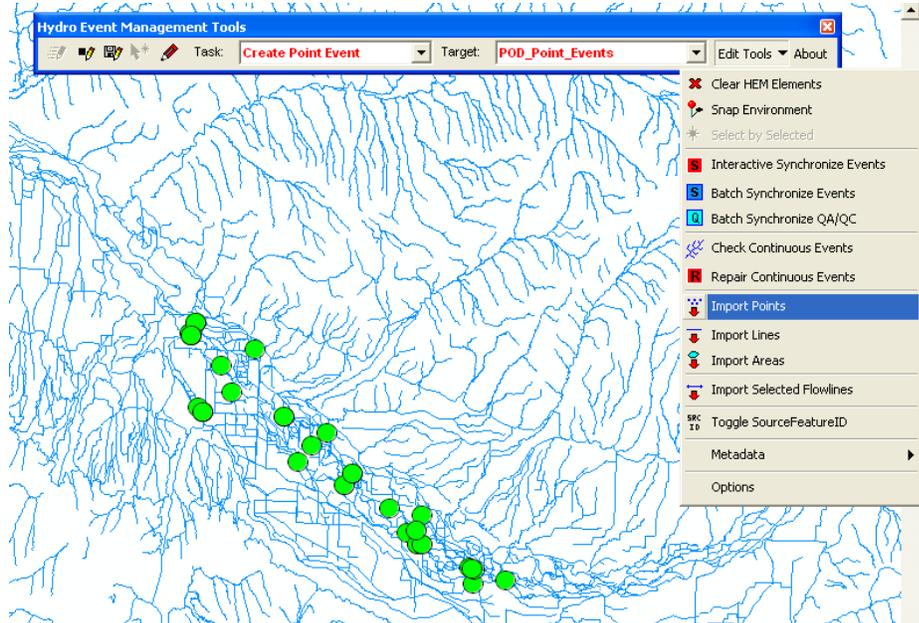


Close the snapping environment

5. In the table of contents click once on Data Point Shapefile to highlight it.
6. Set the scale of your map to 1:1000.



- On the HEM toolbar, click Edit Tools > Import Points



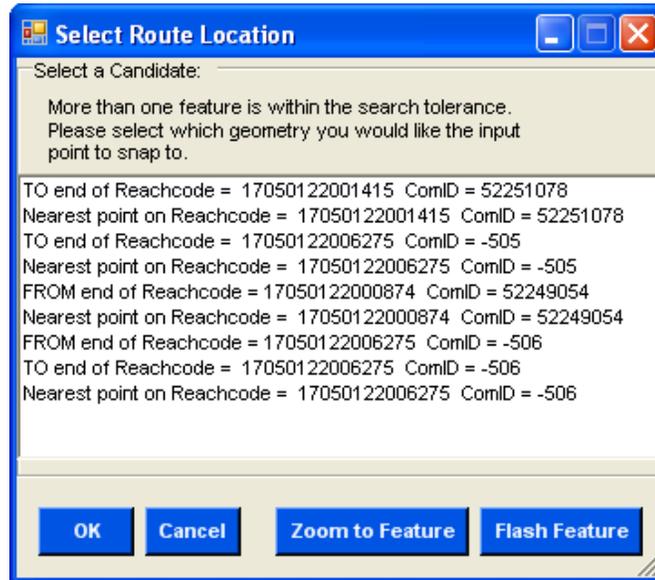
- If no features were selected in the Data Point Shapefile, you will see this dialog box:



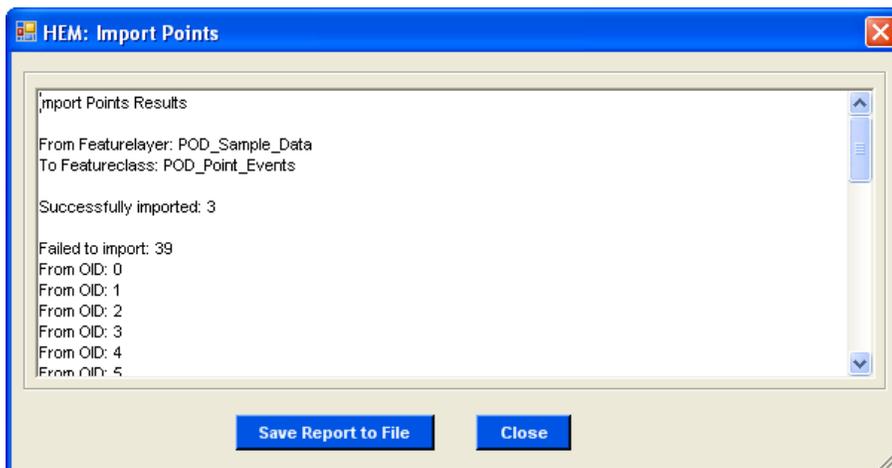
- Check to make sure that the layer is your original source points. If working in iterations, all points should only be imported on the first iteration. On additional iterations, use a selections unless the first iteration failed to import any points. Click Yes if first iteration.
- Transfer the unique attributes from your Data Points Shapefile to the Point_Events Database:



11. Click "Add ID's".
12. The program will run.
13. If more than one NHD feature is within the search tolerance of a point, a dialog box will appear.

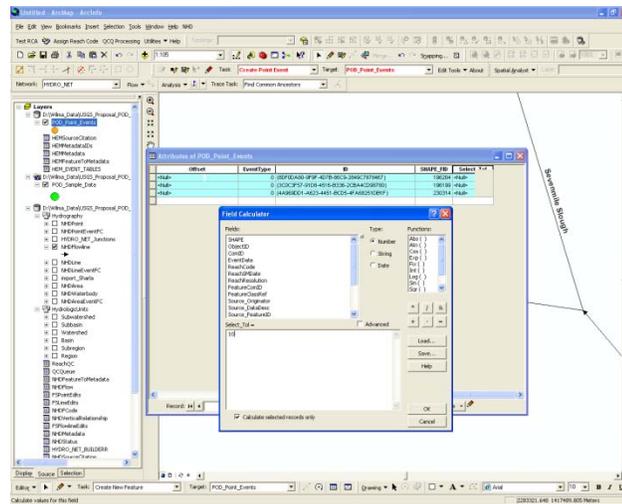


14. Select the top record and say OK. Do **not** Zoom to Feature.
15. A report will be generated showing how many point features have successfully been transformed into events.



16. Open the Point_Events attribute table and field calculate the Select_Tol to 1000.

- a. Select the newly imported records.
- b. Use the field calculator to calculate on the selected records.



17. Use the relate to select the points in the point shapefile that failed to import.

- a. Select all records in the event table.
- b. In the Point_Events attribute table: Options>Relate, Relate1
- c. Open the attribute table of the Points Shapefile. Several Records should be selected. If you compare the Name_Unq fields in both attribute tables, the selected records should match.
- d. In the attribute table of the Points Shapefile, Options> Switch Selection. You now have selected the records that need to be imported at the next scale value.
- e. Close tables

18. Repeat Steps 5 through 15 changing the scale by a factor of 5 each time. (1:1000, 1:5,000, 1:25,000, 1:125,000, 1:625,000, 1:3,125,000) until all points are referenced. (Don't forget to set the Select_Tol appropriately.)

19. When finished. Editor Toolbar, Editor > Save edits. Stop Editing.

EDITING POINT EVENTS

1. Label the data points shapefile and the point events theme so that they can be compared.
2. Editor Toolbar, Editor>Start Editing if necessary.
3. Zoom to the location where the point event is that needs to be moved.
4. On the HEM toolbar, set Task to Update Point Event and the Target to Point_Events:

5. Select the HEM select event tool. 
6. Draw a box around the point to update.
7. A candidate form will appear with selected events listed.
8. Select the feature in the candidate list and click update button.

9. Using the HEM Sketch Tool, specify the new location of the event. 
10. Editor Toolbar, Editor > Save Edits.
11. Editor Toolbar, Editor > Stop Editing

Note: The labeling will not update until editing is stopped.

Note: If there are multiple points at a location, open the identify box and identify on the point of interest before selecting with the HEM select tool. You will need to reference the ID.

DELETE POINT EVENTS

MAKE CERTAIN THAT ONLY THE POINT EVENT YOU ARE INTERESTED IN IS SELECTED. Other features can be deleted by mistake.

1. Editor Toolbar, Editor>Start Editing if necessary.
2. Zoom to the location where the point event is that needs to be deleted.
3. On the HEM toolbar, set Task to Delete Point Event and the Target to Point_Events:

4. Activate the HEM Select Event tool. 
5. Click one of the points.
6. Select the event in the candidate form and click the delete button
7. Save Edits
8. Stop Editing

Canal Name:		Orig. # Points:		
Scale	Points Referenced	Select Route		
1:1000				
1:5,000				
1:25,000				
1:125,000				
1:625,000				
1:3,125,000				