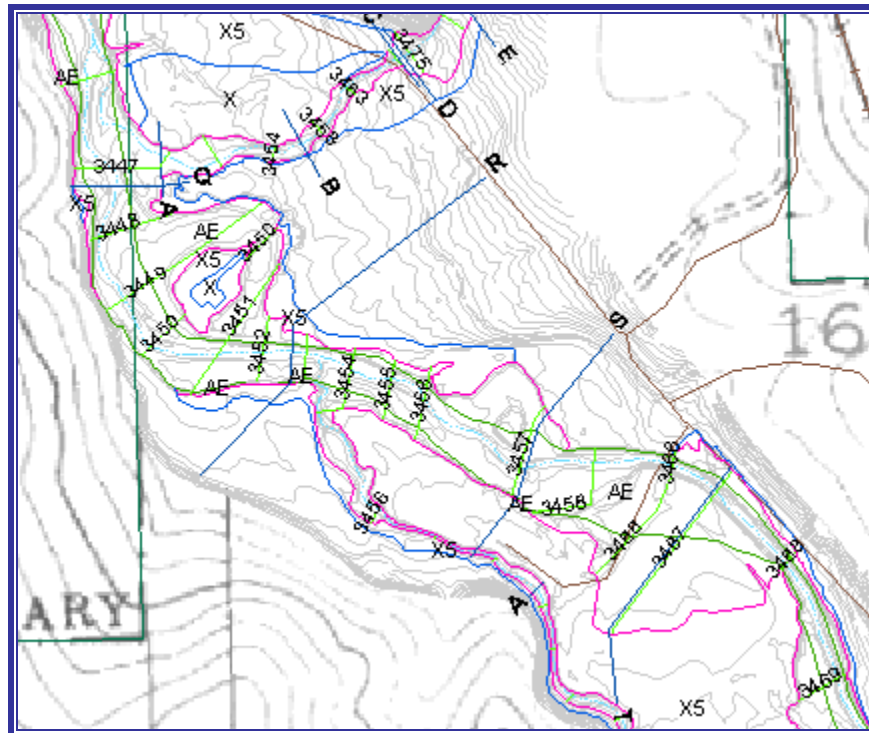














FEMA






# GeoPop Pro Tool User Guide

## FEMA DFIRM Production Tools



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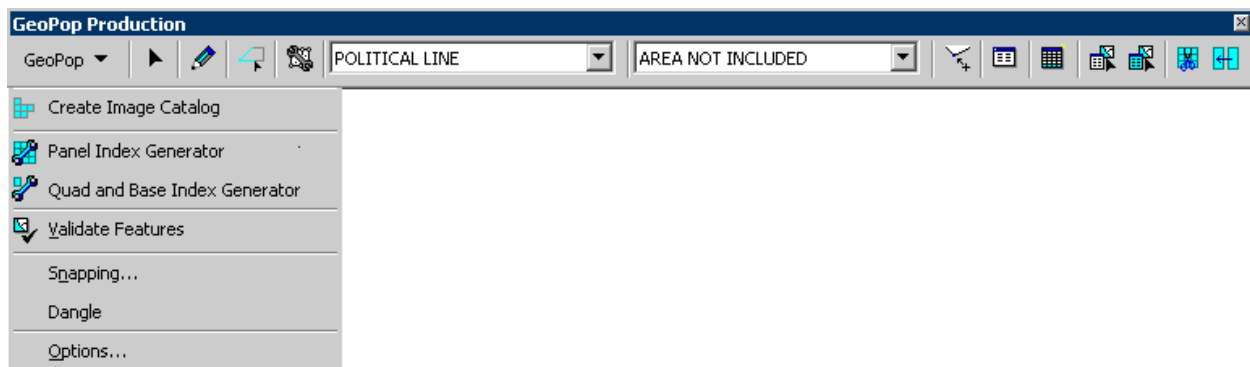
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## What is GeoPop Pro?

The Federal Emergency Management Agency's (FEMA) April 2003 *Appendix L: Guidelines and Specifications for Flood Hazard Partners* (hereon after referred to as FEMA's database specifications) includes the specifications for both draft and delivered DFIRM data. The Geodatabase Population (GeoPop Pro) Tool is a user-friendly application designed to run within ArcMap that allows you to easily capture and edit data that meets FEMA's draft DFIRM database specifications.

With this application, you can easily edit geodatabases with feature classes, domains, and business tables that are compliant with FEMA's database specifications. An advantage of this application is that it prompts you to attribute features as they are digitized. Another advantage is that the dropdown options on the attribute forms are read directly from the domain tables and look-up business tables.

The design of this application consists of a toolbar that is accessible through ArcMap. Each tool on the toolbar helps to simplify data capture. Many tools are similar to existing ArcMap tools for easy recognition: however, they have different functionality. For instance, the **GeoPop Pro** Create New Feature tool allows you to attribute each feature as it is created. There are also tools included for convenience that have not been modified, such as the Snap Tolerance tool.



## GeoPop Pro Overview

The GeoPop Pro user guide contains information that will help guide you in the use of the tool. The key sections of this guide are:

- Quick user reference guide (p. 6)
- Descriptions of tools and how to use them (p. 7)
- Trouble-shooting section containing common errors and their solutions (p. 36)

# What can you do with the GeoPop Pro Tool?

You can attribute features as you digitize by using the [Create New Feature](#) tool.



You can validate attributes of selected features using the [Validate Features](#) tool.



You can attribute a selected set of features individually using the [Attribute Selected Features](#) tool, or you can attribute all of the selected features the same way using the [Attribute All Selected Features](#) tool.



You can set the snapping tolerance using the [Snap Tolerance](#) tool.



You can add a record to one of the look-up tables using the [Add New Row](#) tool.



You can merge the FIRM Panel Index panels using the [Panel Merger](#) tool.



You can create new features using existing features in the same layer with the [Trace](#) tool.



You can split the FIRM Panel Index panels into quarters using the [Panel Divider](#) tool.



You can create new features based on the shape of the features in another layer using the [Construct Features](#) tool.



You can view the attributes of selected features using the [Attributes](#) tool.



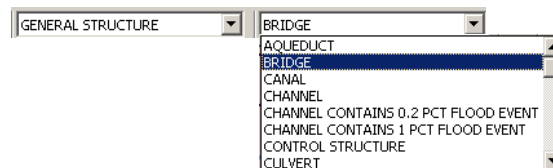
You can generate panels for the FIRM Panel Index (S\_FIRM\_Pan) using the [Panel Index Generator](#) tool.



You can create raster catalogs using the [Create Image Catalog](#) tool. This creates a raster catalog from all the images located in a folder.
















You can select the type of feature to sketch using the [Feature Type](#) drop down tool.



Select the feature layer to edit using the [Target Layer](#) drop down tool. This will also set the target layer as the only selectable layer.

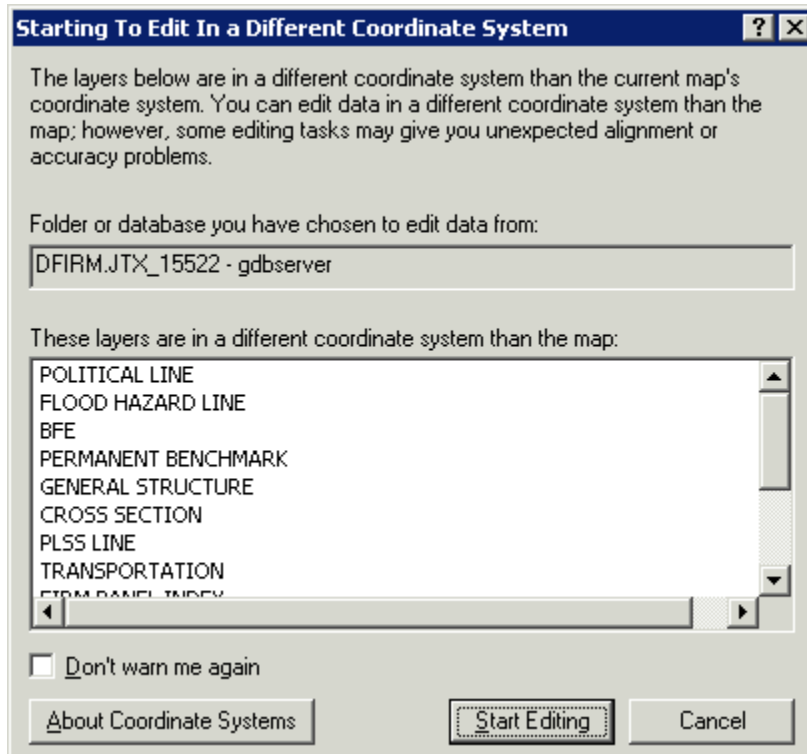
## Quick Reference Guide

The following is a quick reference guide to all the tools available in the **GeoPop Pro** Tool. In addition, positioning your cursor over a button on the toolbar will display its name.

	<a href="#"><u>Edit</u></a>	Edits features
	<a href="#"><u>Create New Feature</u></a>	Adds points to sketch
	<a href="#"><u>Trace</u></a>	Trace features
	<a href="#"><u>Target Layer</u></a>	Identifies which map layer to store features
	<a href="#"><u>Feature Type</u></a>	Identifies the type of feature to digitize
	<a href="#"><u>Construct Features</u></a>	Creates features based on selected features
	<a href="#"><u>Create Image Catalog</u></a>	Creates catalog
	<a href="#"><u>Panel Index Generator</u></a>	Generates panels for FIRM Panel Index
	<a href="#"><u>Validate Features</u></a>	Validates features
	<a href="#"><u>Snapping</u></a>	Shows snapping environment window
	<a href="#"><u>Dangle</u></a>	Shows dangle window
	<a href="#"><u>Options</u></a>	Modify the snapping environment
	<a href="#"><u>Attributes</u></a>	Shows attribute properties
	<a href="#"><u>Add New Row</u></a>	Edits tables
	<a href="#"><u>Attribute All Selected Features</u></a>	Attributes all selected features
	<a href="#"><u>Attribute Selected Features</u></a>	Attributes selected features individually
	<a href="#"><u>Snap Tolerance</u></a>	Sets snap tolerance
	<a href="#"><u>Panel Merger</u></a>	Merges Selected Panels
	<a href="#"><u>Panel Divider</u></a>	Splits Selected Panel
	<a href="#"><u>About</u></a>	Displays program information

## Editing in the JTX Environment

Many of the tools available in **GeoPop** require that you start an editing session. When you start an editing session, you may see the following dialog:



The dialog box warns you that the version of the data that you are planning to edit is stored in a different projection than that which it is displayed in the ArcMap project. The ArcMap session in which you are working projects the data based on the entry made in the STUDY\_INFO table and the data is stored in geographic. Click on **Start Editing** to accept the warning.

## Tool Controls

This section describes the functionality of each of the tools on the **GeoPop Pro** toolbar.

### GeoPop Pro Menu

This button opens the drop down menu containing menu items that allow you to validate features and to set snapping and editing options.

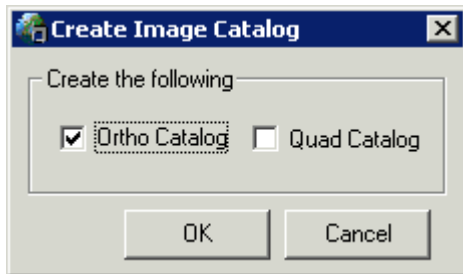
From the **GeoPop Pro** toolbar, click **GeoPop Pro** menu to display the menu items.



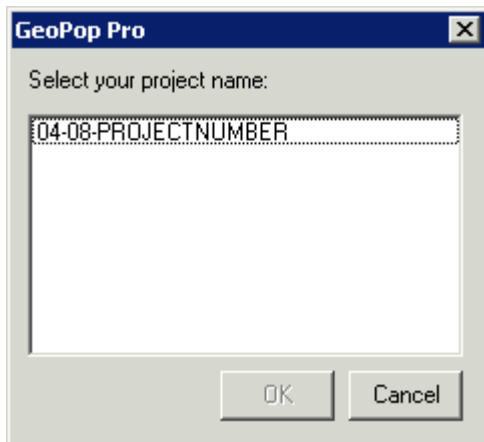
## Create Image Catalog


This tool creates an image catalog from the images located in a directory. To display the catalog, the layer must first be added using the [DFIRM Reference Data Loader](#) button.

1. Click on the **Create Image Catalog** button. Choose to create an Ortho Catalog, Quad Catalog, or both by checking the boxes in the dialog shown below.

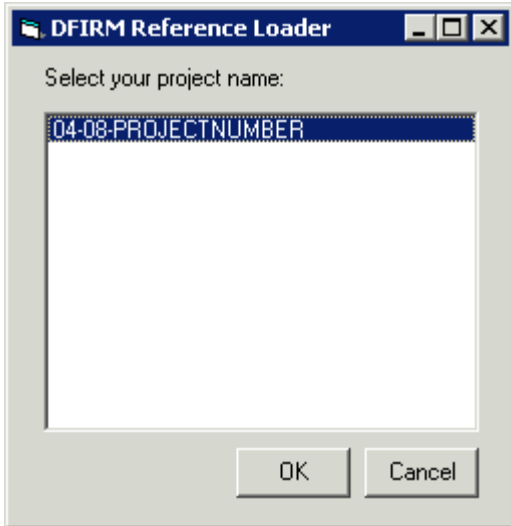


2. Select the name of the project that contains the images for which you want to create a catalog, as shown below.

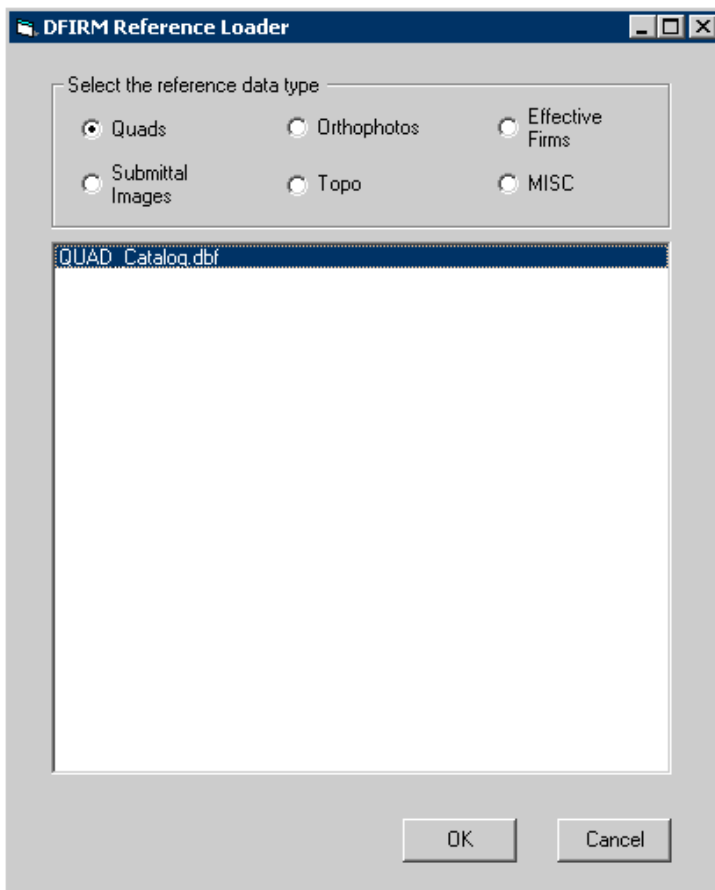


3. Once you select the project number, click **OK**. This will create a new catalog, if one does not already exist for the county on which you are working. If a catalog already exists, you will be notified.
4. Load the image catalog using the [DFIRM Reference Data Loader](#)  (page 31). When you select the icon, the following dialog will appear. Select the project name.





5. Click **OK**
6. The DFIRM Reference Data Loader dialog will appear. Use the radio buttons to select the type of reference data you would like to load. If you created a quad or orthophoto image catalog, select the appropriate option and then select the catalog to be added to your ArcMap session.



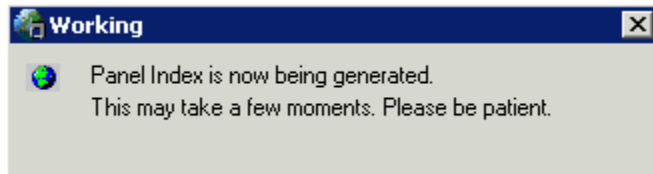


## Panel Index Generator

Generates FIRM Panel Index (S\_FIRM\_Pan) panel areas based on the extent of the Political Area (S\_Pol\_Ar). When you use the **Panel Index Generator** tool, certain fields such as panel number and scale will be automatically calculated for you. This tool requires that the Political Area (S\_Pol\_Ar) data layer is created and populated in advance. The panels created are limited to the extent of the Political Area.

1. Click **Panel Index Generator**.

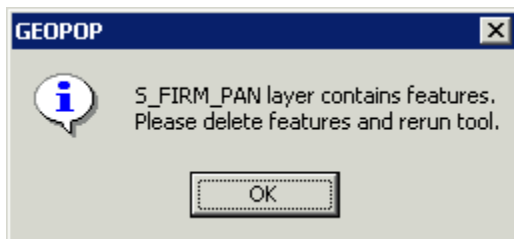
The tool will now begin the process of generating FIRM Panel Index (S\_FIRM\_Pan) panel areas. The following window will appear. It may take a few moments to complete. This window will disappear when the process has completed.



Generating S\_FIRM\_Pan and S\_Quad\_Index using the Panel Index Generator

**Note:** It is important that you attribute the FIRM Panel features after generating them. While some attributes are calculated automatically upon creation, there are others that the user will have to enter for additional DFIRM tools to function.

If any features already exist in the FIRM Panel Index (S\_FIRM\_Pan), the following error message will appear. You must remove any existing features before re-running the tool.

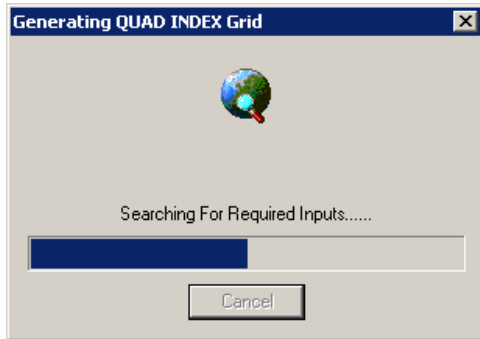


## Base and Quad Index Generator

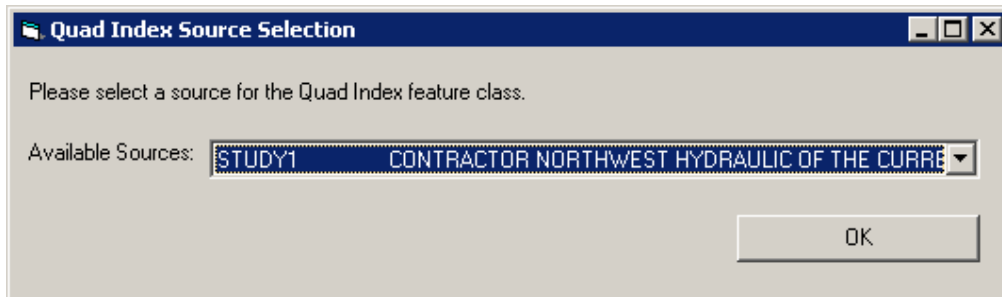
Generates Base Index (S\_BASE\_INDEX) and Quad Index (S\_QUAD\_INDEX) based on your study data. For Base Index, the tool looks to the appropriate folder that contains the base images used for the study. Any image that resides in that folder is added to the Base Index. For Quad Index, the tool uses the Political Area features to select the

appropriate panels from a nationwide shapefile of USGS 7.5 minute Quads. During this process, the user is prompted to set attribute information for the features being created, as outlined below.

1. On the **GeoPop** toolbar menu, select the **Base and Quad Index Generator** tool.
2. The tool will begin to process Quad Index, indicated by the following status box.

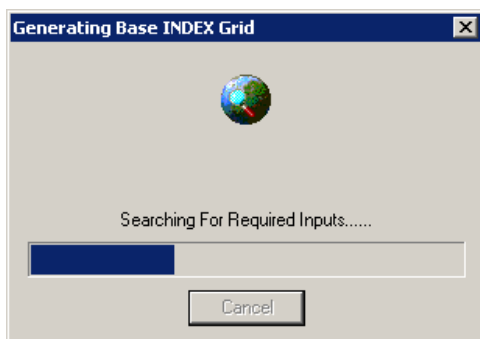


3. The user is then prompted with the **Quad Index Source Selection** dialog, where they need to select the appropriate source citation from the list provided.

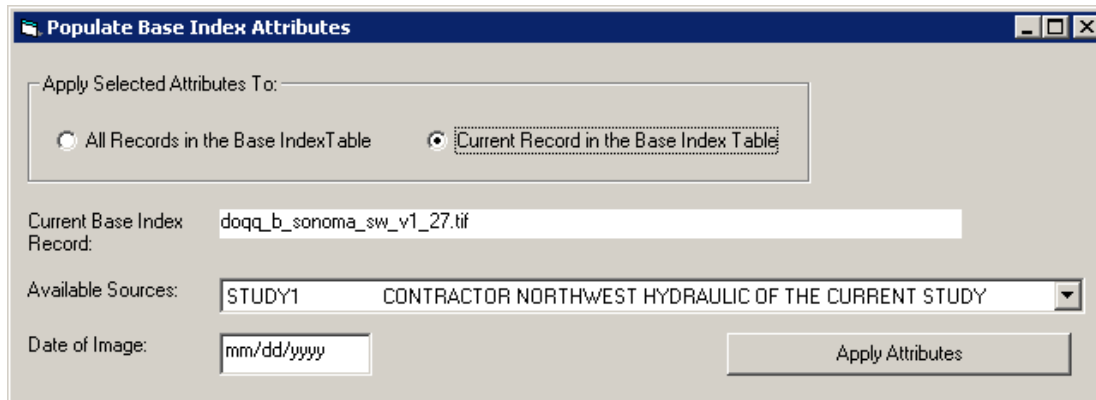


**Note:** The Available Sources dropdown menu is populated by L\_SOURCE\_CIT. If the source that you need is not present in the list, then you will have to go back and use GeoPop to add and additional source to L\_SOURCE\_CIT.

4. When the user hits **OK** on that dialog, they will see that the tool starts generating the Base Index.



- Next, the user is prompted with the **Populate Base Index Attributes** dialog. Here the user has an option – they can either attribute the images one by one (Current Record), or can apply attributes to all records. Note that if the user chooses to attribute the current record, the tool will loop through all records.



**Note:** The Available Sources dropdown menu is populated by L\_SOURCE\_CIT. If the source that you need is not present in the list, then you will have to go back and use GeoPop to add and additional source to L\_SOURCE\_CIT.

- Once the user has set the attributes, the click on Apply Attributes to complete the process.

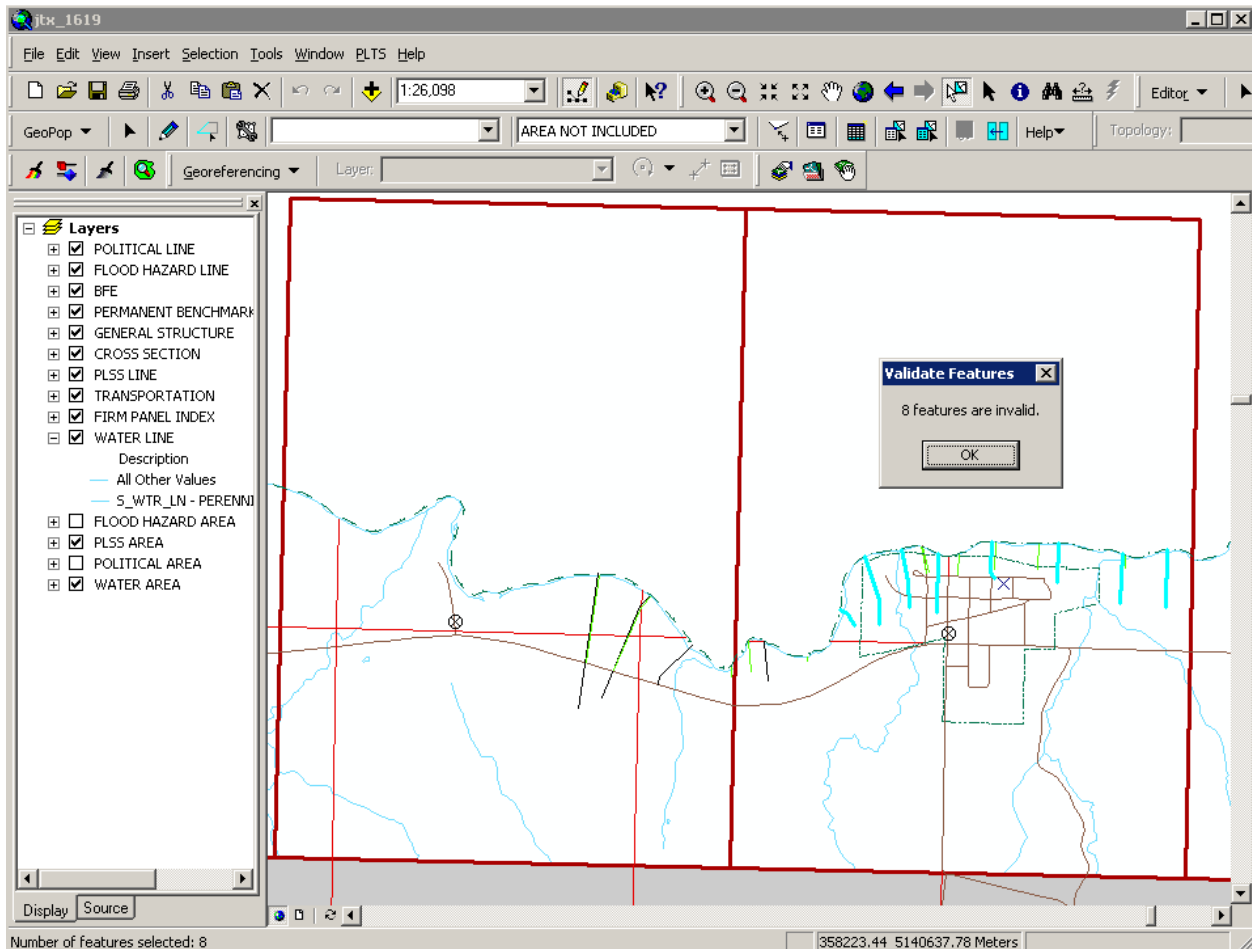


## Validate Features

Applies validation rules to selected features in a geodatabase and flags those features with invalid attributes.

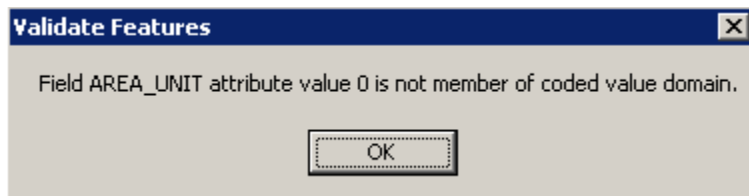
- Begin an edit session, from the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
- Select the features you want to validate using the **Edit** ► tool.
- Click on the **GeoPop Pro** menu and select **Validate Features**.

If your selection contains any invalid features, a message box will appear with the number of invalid features. Only those features that are invalid will remain selected, as seen in the following image:

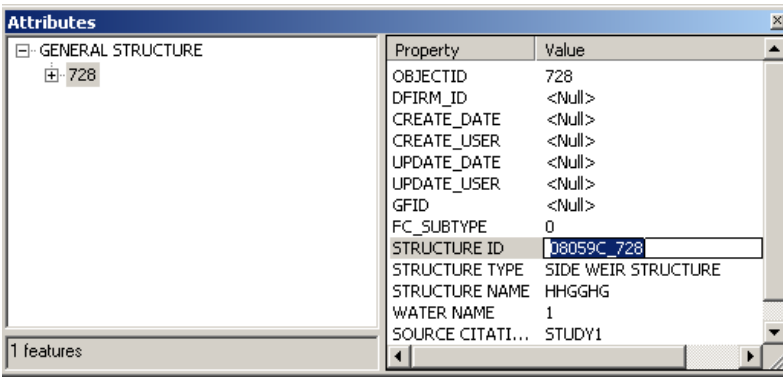


4. Click **OK**.
5. Click on one of the invalid features.
6. Repeat step 3.

A message box appears telling you why the feature is invalid.

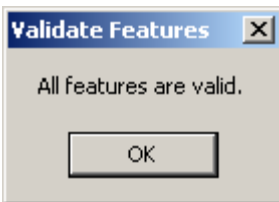


7. Click the **Attributes** button to view the attributes of the invalid features.
8. Click on the values that are invalid and make the necessary modifications.



Attributes window seen in ArcMap

9. Close the attributes window.
10. Repeat steps 6 – 9 for the remaining features.
11. Repeat steps 2 and 3. You should see a message box informing you that all the features are valid



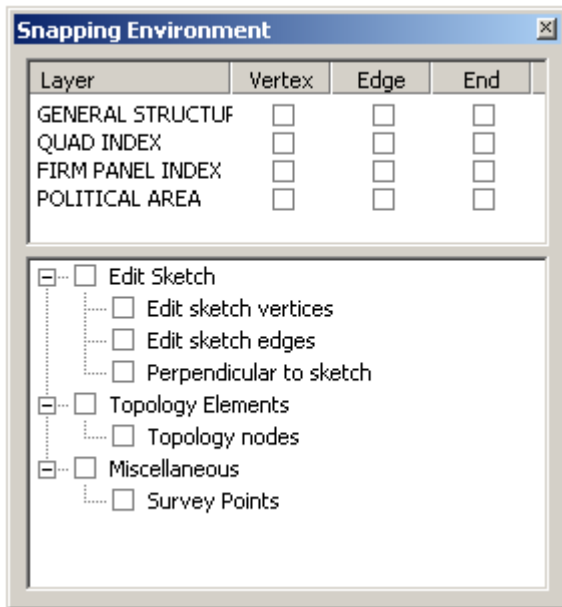
Validate Selection results window seen in ArcMap

## Snapping

Opens and closes the Snapping Environment window. Snapping allows the user to designate if the edited feature will connect to the vertex, edge, or end of another feature. The user may also elect whether the feature being edited is able to snap to its own edge or vertex. The order of the feature layers defines the priority of the snapping. By dragging layers up and down in the Table of Contents, the snapping priority will change. Note that when the Snapping Environment window is closed, the snap-related properties are still active; the user must unselect the relative checkboxes to discontinue snapping.

1. From the **GeoPop Pro** toolbar, click **GeoPop Pro** menu and click **Snapping**.
2. The Snapping Environment window will appear.
3. Check the properties you wish to set.

The snapping properties are effective as soon as they are checked or unchecked.

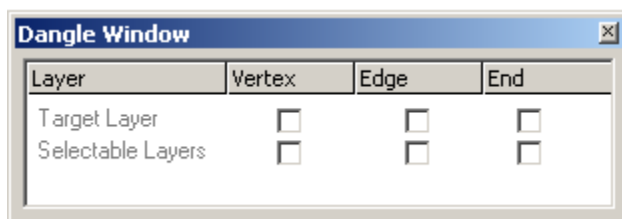


Snapping environment window seen in ArcMap

## Dangle

Opens and closes the Dangle environment window. This tool allows the user to display dangle-related errors. If the selected polyline features are not connected to the vertex, edge, or end of another polyline feature, the node is highlighted. The user may choose to display errors for the target layer, which must have a polyline geometry type, or may choose to display errors in all selectable polyline geometry types. Note that when the Dangle Window is closed, the dangle-related properties are still active; the user must unselect the relative checkboxes to no longer display the dangle nodes.

1. From the **GeoPop Pro** toolbar, click the **GeoPop Pro** menu and click **Dangle**. The Dangle Window will appear:



2. Check the properties you wish to set. The dangle properties are effective as soon as they are checked or unchecked.

**Note:** This tool is especially useful for snapping flood zone lines together and for snapping BFEs to the 100-year flood zone.

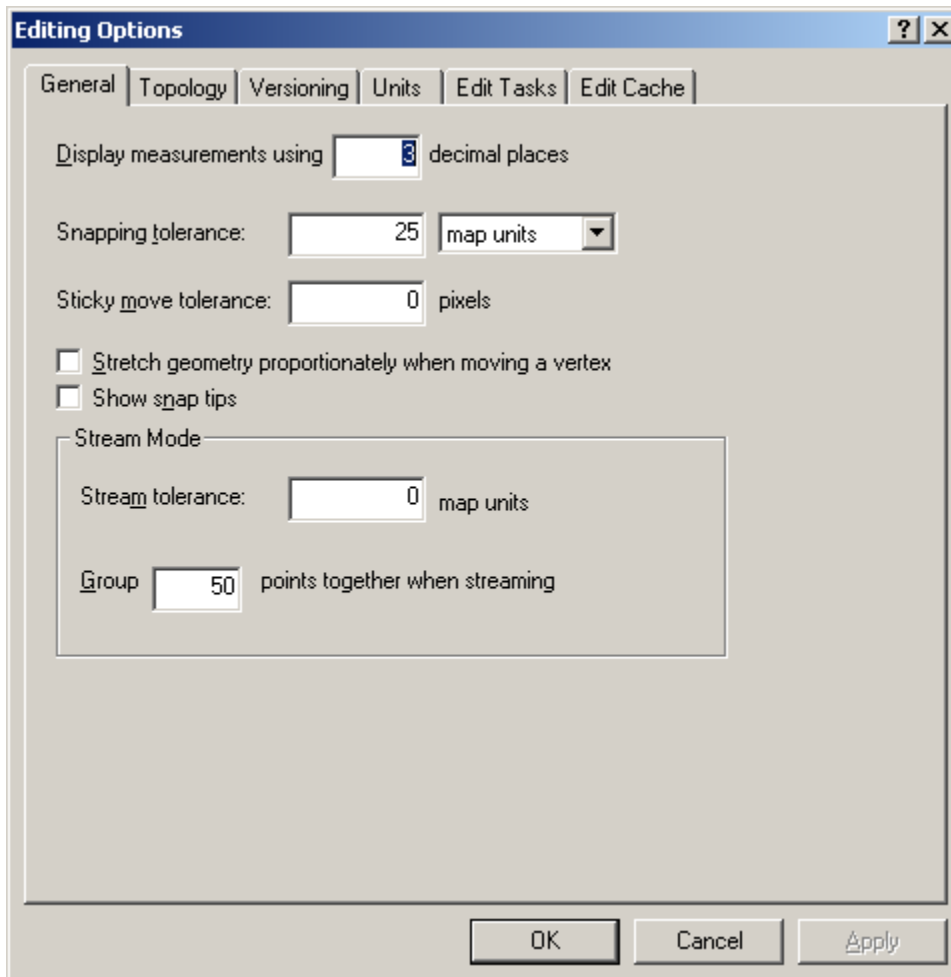
## Options

Displays the options for the ArcMap editing environment. Most of the time, you will only use the options that appear under the **General** tab.

1. From the **GeoPop Pro** toolbar, click **GeoPop Pro** menu and click **Options**. The Editing Options window will appear.
2. Set the editing options and click **OK**.

It is recommended to set the units of snapping tolerance to map units.

The editing properties are effective immediately.



Editing Options dialog window



## Edit

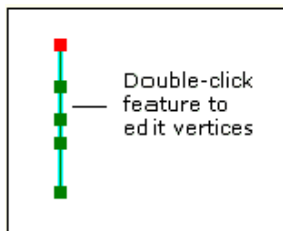
Selects geographic features for the purpose of editing. You can click on a feature to select it or drag a box to select many features.



1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Click the **Edit** tool
3. Move the pointer over a feature and click the mouse. The feature should be highlighted.
4. Hold the **Shift** key down while you click to select multiple features. You can also click and drag a box to select multiple features.
5. Hold the **space bar** key down while you click to select a subset of features that are already selected
6. Click on the vertices to modify them. Delete those selected or add new ones using the Sketch context menu. To view the **Sketch context** menu, right-click while holding the mouse over the feature.

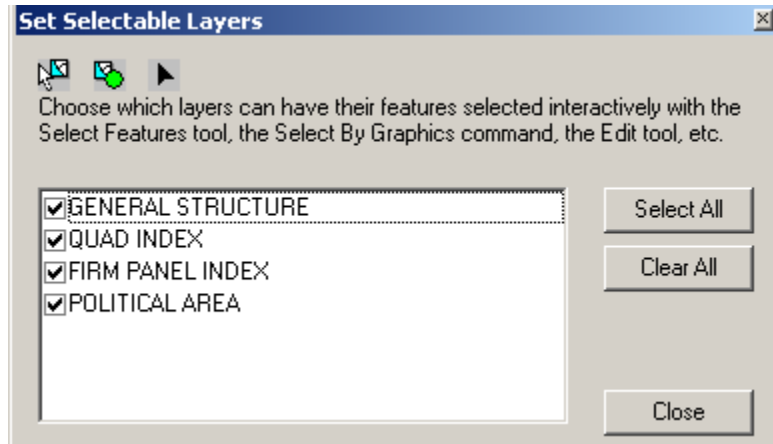
- a. To modify the vertices of a feature:

Double-click on the feature with the **Edit** tool. Make sure that the task in the **Current Task** dropdown list is **Modify Feature**.



Modifying vertices of a feature in ArcMap

- b. Use the Set Selectable Layers dialog box to limit feature selection to the layers of interest. The features in the layers chosen are selectable immediately.
  - i. From the Main menu, click **Selection**.
  - ii. Click **Set Selectable Layers**.
  - iii. Choose the layers you want to select.
  - iv. Click **Close**.



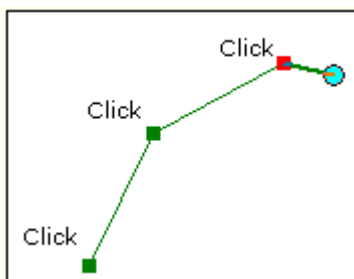
Set Selectable Layers window seen in ArcMap



## Create New Feature

Adds points, vertices, and segments to the sketch. You can create three types of features: points, lines, and polygons.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Make sure that the current task listed in the task dropdown list on the Editor toolbar is **Create New Feature**.
3. Set a target layer in the **Target Layer** dropdown on the **GeoPop Pro** toolbar.
4. If the **Feature Type** tool is enabled, set the feature type to digitize.
5. From the **GeoPop Pro** toolbar, click **Create New Feature**.
6. Click on the map to sketch a new feature.



Creating new features in ArcMap

**TIP:** Use snapping to ensure connectivity.

7. **Double-click** to finish the sketch.
8. Once a new feature has been created, the attribute window will appear.

The dropdown lists contain the coded value descriptions for the related fields, which are populated from the tables inside the geodatabase. Changes to the tables in the geodatabase will affect the list that appears in the dropdown.


Attribute	Req?	Value
Political Area ID	✓	08059C_350
Political Name 1	✓	
Political Name 2		
County FIPS	✓	AUTAUGA COUNTY
State FIPS	✓	ALABAMA
Community Number	✓	ABBEVILLE, CITY 0
Community ID	✓	010259
Area Not Included	✓	T
Community Info ID		085072

**NOTES:**

Standard attributes are displayed with white field backgrounds. Enhanced attributes have yellow field backgrounds.

Checkmarks in the "Required" column indicate those fields that must be populated.


Attribute feature window seen in ArcMap. Note: Attribute dialogs will vary depending on target layer

9. Click the **Flash Feature** button  to highlight the new feature.
10. Attribute the new feature by typing in new values in the fields and selecting from the options in the dropdown lists.
11. Click **OK**.



## Trace

Creates segments by tracing over the segments of selected features.


1. Switch to Data View from Layout View.
2. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
3. Select features you want to trace using the **Edit**  tool.

4. Click the **Trace** tool.
5. Click on the map to start tracing.
6. Move the cursor over what you want to trace.

You can move the mouse in the reverse direction to remove unwanted segments or press the **Esc** key to cancel the trace.



Tracing features in ArcMap. No offset is used in this example.

7. Click on the map to stop tracing.
8. **Double-click** to display the attribute dialog window.
9. Click the **Flash Feature** button  to highlight the new feature.
10. Attribute the new feature by typing in new values in the fields and selecting from the dropdowns.
11. Click **OK**.



## Construct Features

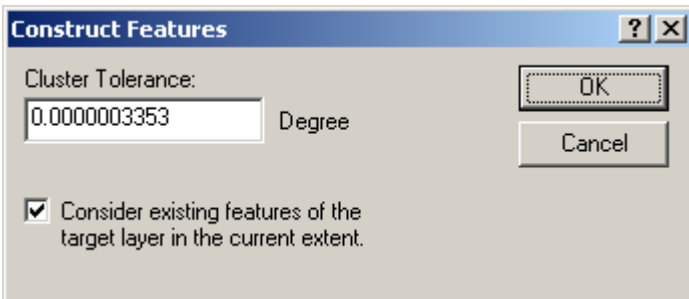
Constructs features based on the shape of selected features. You can select features from one or more layers to create features in the target layer. You can choose to select lines or polygons to create lines or polygons depending on the geometry of the target layer. This command is disabled if you have an ArcView license.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Select the features with the geometry from which you would like to construct features. This command is disabled if you do not have any features selected.
3. Set the target layer in the **Target Layer** box.



Target Layer

4. Click the **Construct Features** command.
5. The Construct Features window will appear.



Setting the cluster tolerance for Construct Features command in ArcMap

6. The cluster tolerance is the minimum distance between vertices of features that are not coincident. Vertices that fall within the cluster tolerance are defined as coincident and snapped together (ESRI help).
7. The default value for the cluster tolerance is  $3.353 \times 10^{-7}$  degrees. You can modify this tolerance. Select **OK** to set the cluster tolerance.
8. The new feature is created in the target layer.

## Target Layer

Sets the map layer that contains the features you want to edit or store new features to. In setting the target layer, the **Feature Type** dropdown is enabled/disabled based on whether the target layer has multiple feature types that can be digitized.

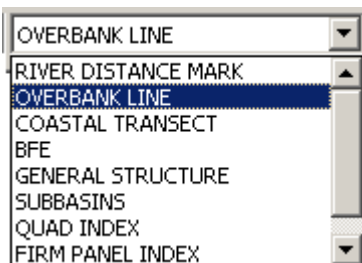
1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.

The **Target Layer** window should be active.



Target Layer

2. Click on a layer in the **Target Layer** dropdown list to select it.

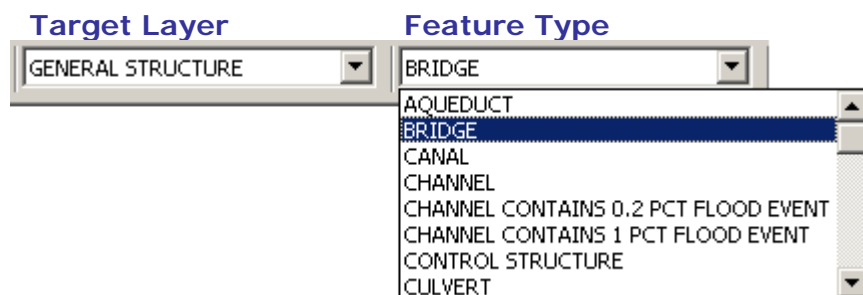


Setting the target layer in ArcMap

## Feature Type

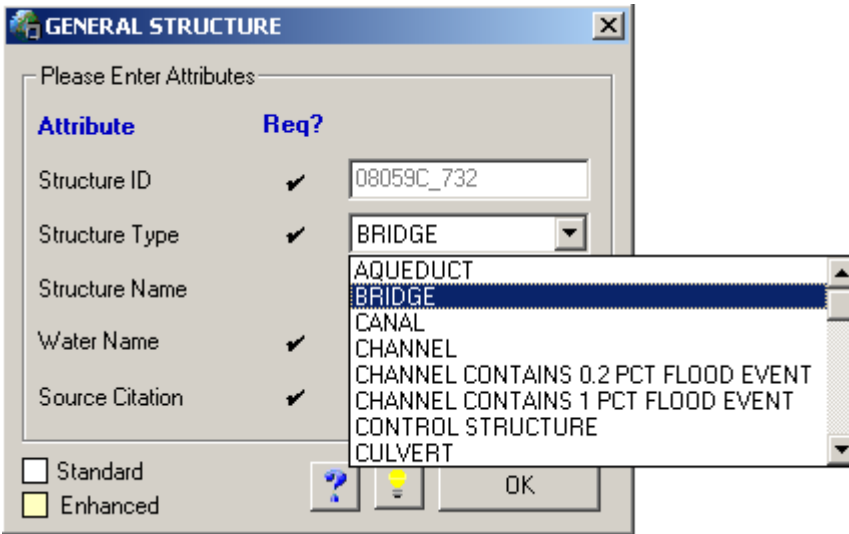
Specifies the feature type that will be digitized. This tool is only enabled when the current edit layer is: either **Flood Hazard Line** (S\_Fld\_Haz\_Ln), **General Structure** (S\_Gen\_Struct), **PLSS Line** (S\_PLSS\_Ln), **Political Line** (S\_Pol\_Ln), **Transportation** (S\_Trnsport\_Ln), or **Water Line** (S\_Wtr\_Ln). The tool will not be enabled if any other layer is currently being edited.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. The **Target Layer** tool should be active.
3. Click a layer in the **Target Layer** dropdown list.
4. If the layer listed in the **Target Layer** dropdown list has multiple feature types, the **Feature Type** dropdown will be enabled/disabled.
5. Select a feature type and using the **Create New Feature** tool, begin adding new features.



Setting Feature Type command in ArcMap

You will notice that the feature type selected is reflected in the attribute feature dialog window. The feature type can be modified before the attributes are applied to the feature.



**NOTES:**

Standard attributes are displayed with white field backgrounds. Enhanced attributes have yellow field backgrounds.


Checkmarks in the "Required" column indicate those fields that must be populated.

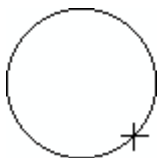
Attribute feature window for the General Structures layer



## Snap Tolerance

Sets the tolerance value applied to all snap agents.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Click on the **Snap Tolerance**  tool.
3. Click on the map.
4. Drag an expanding circle on the map to set the tolerance value.




5. Press the **T** key to see the tolerance value when editing.

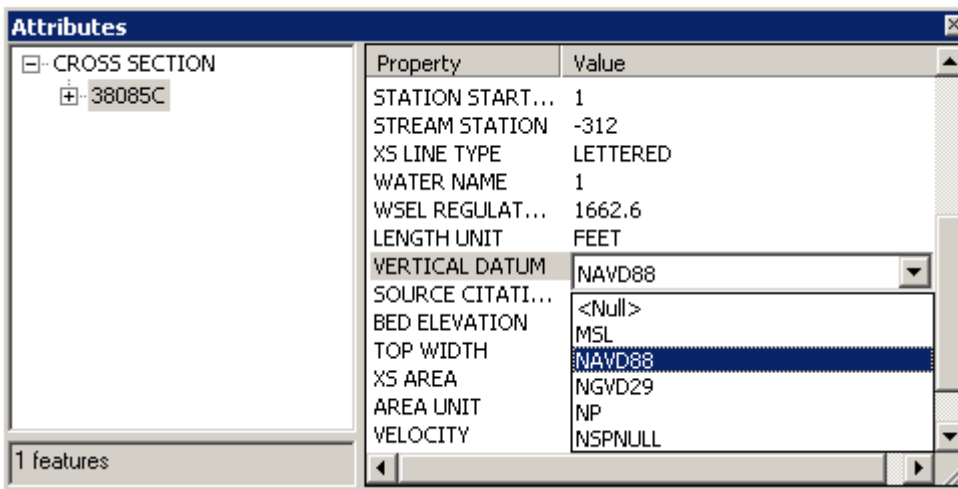
The tolerance units and value can also be set in the **Options** window.



## Attributes

Allows attributes of selected features to be viewed and modified. This tool is useful for viewing data and making edits. To have more control over attribute editing and to take advantage of intuitive dropdown options for fields with domains and look-up tables, it is recommended that you use either the [Attribute Selected Features](#) (page 24) or the [Attribute All Selected Features](#) (page 25) tool.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Select the features whose attributes you want to view with the **Edit** ► tool.
3. Click the **Attributes**  tool.
4. The Attributes window will appear.



Attributes window

5. Select values for editing. Dropdown options will be shown for those attributes with domains, as seen in the above image.



## Add New Row

Adds new records to the tables. Currently, this tool works for the non-feature attribute tables ([L\\_](#)) and [Study\\_Info](#).

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Click the **Source** tab on the bottom of the table of contents.



3. Select a table in the table of contents that has been added to ArcMap, or add a table using the **DFIRM Layer Data Loader** tool.

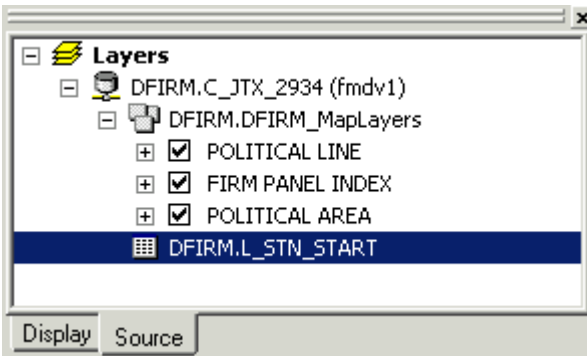
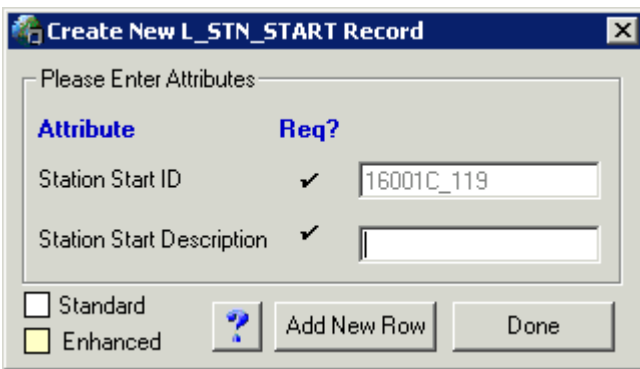


Table of contents frame in ArcMap

4. Click **Add New Row** tool.



NOTES:  
Standard attributes are displayed with white field backgrounds. Enhanced attributes have yellow field backgrounds.

Checkmarks in the "Required" column indicate those fields that must be populated.

Add New Row attribute window

5. Type in the attribute values in the fields.
6. Repeat steps 4 & 5 until completed.
7. Click **Done** when finished.

**Note:** To view the tables listed in the table of contents, click on the Source tab located at the bottom left of the viewer window.




## Attribute Selected Features

Attributes selected features using the attribute dialog windows.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Click a layer in the **Target Layer** dropdown list.
3. Select features you want to attribute using the **Edit** ► tool.
4. Click the **Attribute Selected Features** tool.

The feature attribute window will appear.

The attribute window displays the current attributes of the feature. If the feature does not have any attributes, default attributes will be shown.

5. Click the **Flash Feature** button  to highlight the new feature.
6. Attribute the feature by typing in new values in the fields and selecting from the dropdowns.
7. Click **OK**.
8. Steps 5 - 7 will be repeated for every selected feature.



## **Attribute All Selected Features**

Attributes all selected features using dialog windows. All selected features will be attributed with the same values.

1. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
2. Click a layer in the **Target Layer** dropdown list.
3. Select features you want to attribute using the **Edit** ► tool.
4. Click the **Attribute All Selected Features** tool. The feature attribute window will appear.

Attribute	Req?	Update Field
BFE Line ID	✓	<input checked="" type="checkbox"/> All
Elevation	✓	<input checked="" type="checkbox"/>
Length Units	✓	<input checked="" type="checkbox"/>
Vertical Datum	✓	<input checked="" type="checkbox"/>
Source Citation	✓	<input checked="" type="checkbox"/>

Standard  
 Enhanced

5. Check the box next to the fields you want to modify. Click the  to select/unselect all the checkboxes.
6. Attribute the features by typing in new values in the fields and selecting from the dropdowns.
7. Click **OK**.

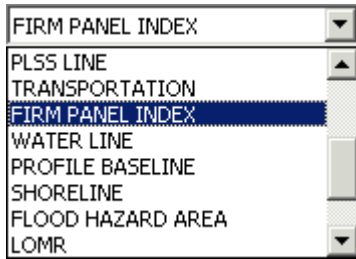
**Note:** **Attribute All Selected Features** will apply the same attributes to all of the selected features. **Attribute Selected Features** permits you to apply unique attributes to features, even if you select more than one at a time. Also note that your edits will be saved automatically. You will not be prompted to “Save Edits” when you stop editing.



## Panel Divider

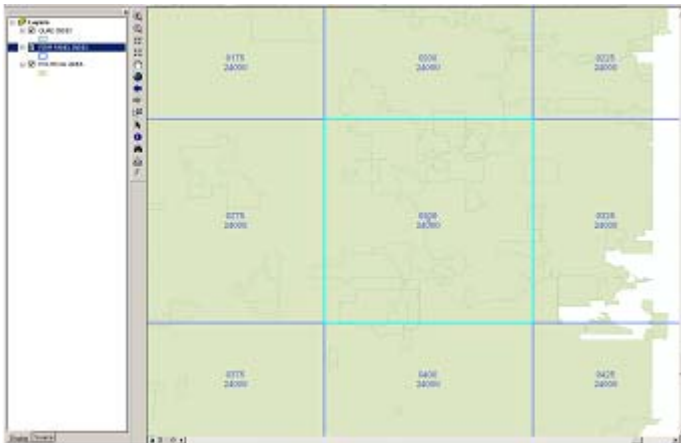
Panel Divider enables you to divide a FIRM Panel Index (S\_FIRM\_Pan) panel into quarters. You can split a 1:24,000 scale panel into four 1:12,000 panels, or you can split a 1:12000 panel into four 1:6,000 panels. The scales mentioned are those displayed in ArcMap. The scale shown on panel layouts will be displayed in feet. The tool also automatically calculates the new panel numbers, scales, and corner coordinates.

1. Switch from Layout View to Data View.
2. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
3. Select the FIRM Panel Index (S\_FIRM\_Pan) layer in the **Target Layer** dropdown list.



**Note:** If you want to turn on labels for this process, you need to right-click on “FIRM PANEL INDEX” in the table of contents. Next, select “Properties...”, then select the “Label” Tab. Then, check the “Label features in this layer” box and select the “Expression” tab. In the “Expression” window, type **[PANEL] & vbnewline & [SCALE]**. This will label each FIRM Panel with the panel number and scale as seen in the images below.

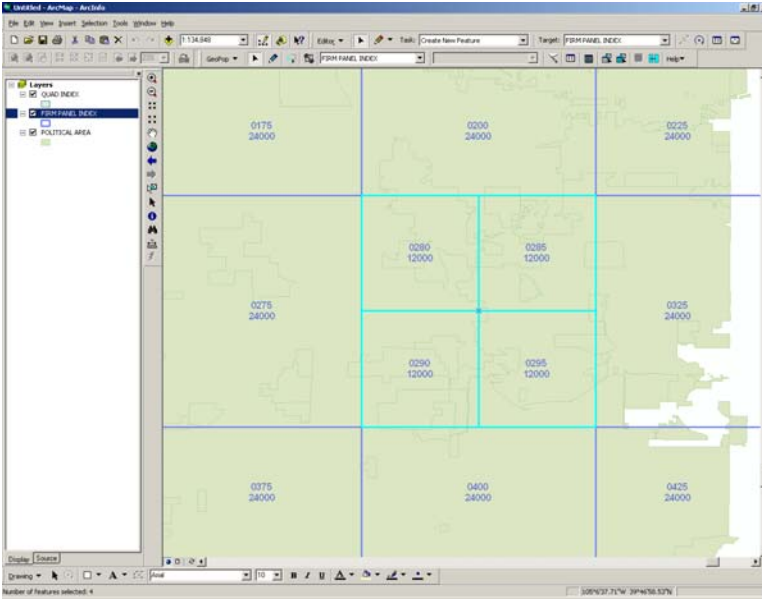
4. Select the panel to split using either the **Edit** tool  or the **Select Features** tool .



Each panel shows the Panel ID above the Panel Scale (in inches)

Selecting features to split using the Panel Divider tool in ArcMap

5. Click the **Panel Divider** tool .




Each panel shows the Panel ID number above the Panel Scale (in inches)

The results of the Panel Divider command

You should see the panels divided into quarters with the panels and scale correctly attributed.

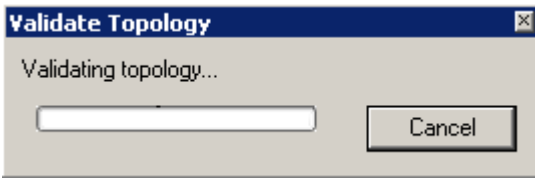
**Note:** It is critical that you validate the topology after each use of the **Panel Divider**. If you do not validate after each edit, there will be errors in the topology (gaps and slivers) and resulting error messages will follow.

6. Validate the topology of the FIRM Panel Layout (S\_FIRM\_PAN). This will ensure that there will be no gaps or slivers in the panel layout.
  - a. Start an editing session, if you are not already in one.
  - b. Check your table of contents for the Topology Rules layer. If you do not see it, add the layer with the **DFIRM Layer Data Loader**  (see p. 31). Click on the **DFIRM Layer Data Loader** icon and select the **Add Standard Layers** button.
  - c. Zoom out to the full extent of your data
  - d. Select the FIRM\_PAN\_TOPOLOGY from the dropdown target list in the Topology toolbar. If you do not see the Topology toolbar below, add it to your project from View / Toolbars.



Validate Topology in Current Extent

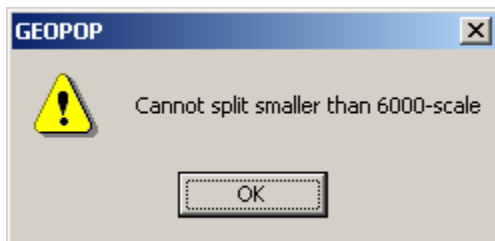
7. Run the **Validate Topology in Current Extent** tool, located on the Topology toolbar. The following status box will appear:



Validating Topology status box

8. Click **Save Edits** to preserve any changes.

**NOTE:** The Panel Divider tool will not allow you to create panels smaller than 6,000-scale. You will see the following window if you attempt to divide a 6,000-scale panel.



Error message shown when trying to split panels smaller than 6000-scale





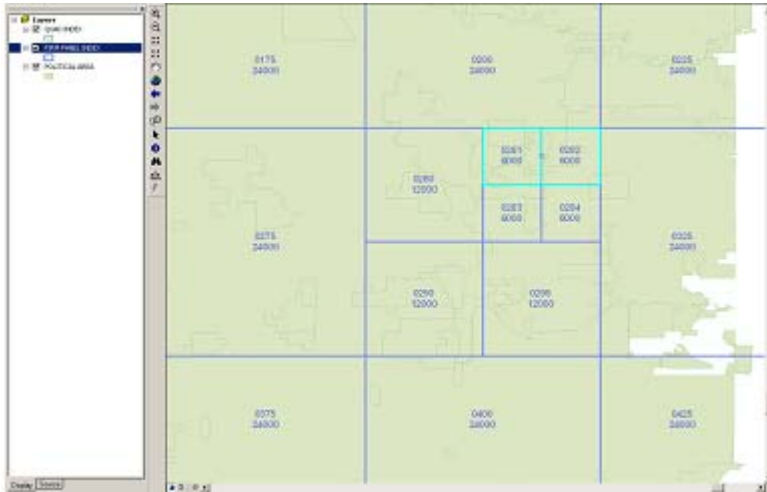
## Panel Merger

The **Panel Merger** tool enables you to merge two or more selected FIRM Panel Index (S\_FIRM\_Pan) panels to create custom panels. The tool automatically calculates the new panel number and scale. It also checks to make sure duplicate panels are not created in the merging operation. For example, if a 24,000-scale panel exists, it will not create another.

The **Panel Merger** tool allows you to merge multiple panels within the extent of a 1:24,000 scale panel into one panel. However, it will not allow you to merge panels across 24,000-scale panels, nor will it merge 6,000-scale panels across 12,000-scale panels.

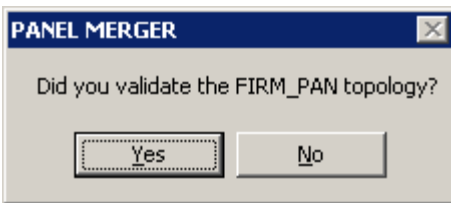
1. Switch from Layout View to Data View.
2. Begin an edit session. From the Editor toolbar, click on the **Editor** dropdown list and click **Start Editing**.
3. Select the FIRM Panel Index (S\_FIRM\_Pan) layer in the **Target Layer** dropdown list.

4. Select the panels to merge using either the **Edit** tool  or the **Select Features** tool .



Merging panels using the Panel Merger command in ArcMap

5. Click the **Panel Merger** tool. The following message box will appear:



Confirm that you have validated the topology

If you select Yes, then the panels will merge. However if you select No, the tool will not merge the panels, giving you the chance to properly validate your features. You should see the panels merged and scale correctly attributed.



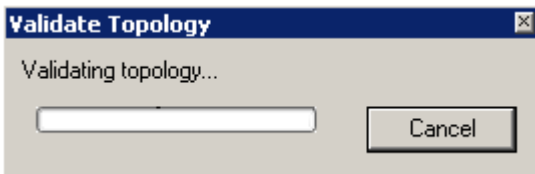
The results of the Panel Merger command

6. Validate the topology of the FIRM Panel Layout (S\_FIRM\_PAN). This will ensure that there will be no gaps or slivers in the panel layout.
  - a. Start an editing session, if you are not already in one.
  - b. Check your table of contents for the Topology Rules layer. If you do not see it, add the layer with the **DFIRM Layer Data Loader** (see p. 31). Click on the **DFIRM Layer Data Loader** icon and select the **Add Standard Layers** button.
  - c. Zoom out to the full extent of your data.
  - d. Select the FIRM\_PAN\_TOPOLOGY from the dropdown target list in the Topology toolbar. If you do not see the Topology toolbar below, add it to your project from View / Toolbars.



Validate Topology in Current Extent

7. Run the **Validate Topology in Current Extent** tool, located on the Topology toolbar. The following status box will appear:



Validating Topology status box

8. Click **Save Edits** to preserve any changes.



## Load Additional Data Toolbar

The tools on the Load Additional Data Toolbar allow users to add data to their ArcMap session that is not added automatically as part of the standard DFIRM layers. Data that a user may wish to add includes raster catalogs of DOQs/Quads, contour lines, effective panel layout schemes, and any of the enhanced SDE feature classes.



### [DFIRM Layer Data Loader](#)

Adds additional layers and tables from the SDE geodatabase



### [DFIRM Reference Data Loader](#)

Adds reference data to the map view



### [Show DFIRM Adjacent Area](#)

View adjacent DFIRMs



### [Show Only DFIRM Area](#)

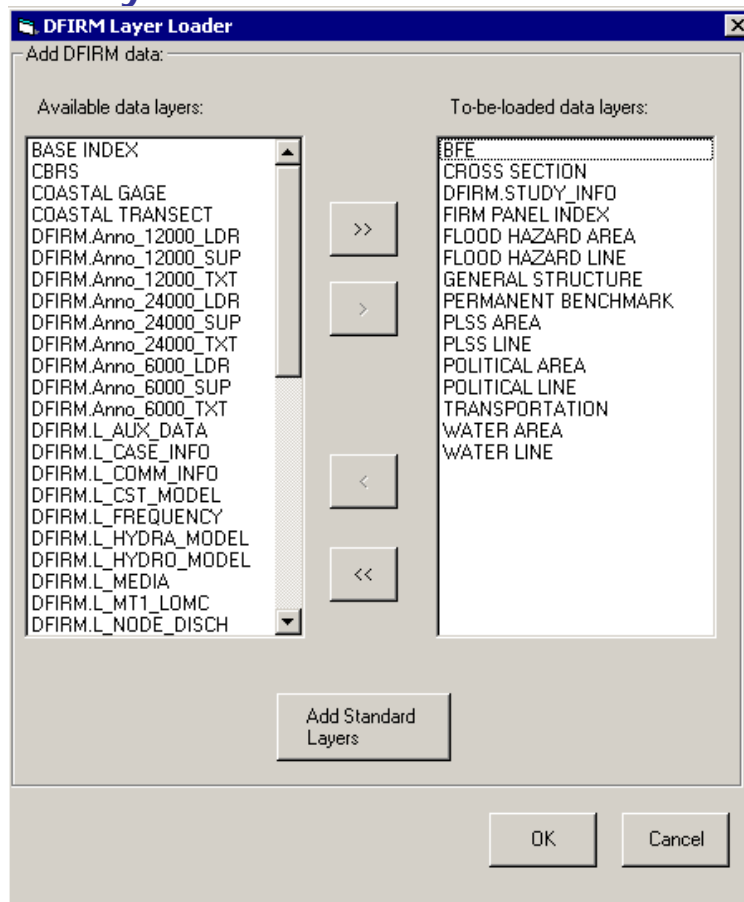
Remove view of adjacent DFIRMs



## DFIRM Layer Data Loader

Available Data Layers: list of features that are part of the SDE geodatabase that can be added.

Select features from the Available Data Layers box and hit the add arrow to add it to the list of features to be added to ArcMap.



To-be-loaded data layers: list of all features that will be added to ArcMap.

Will add all standard layers to ArcMap (done by default).



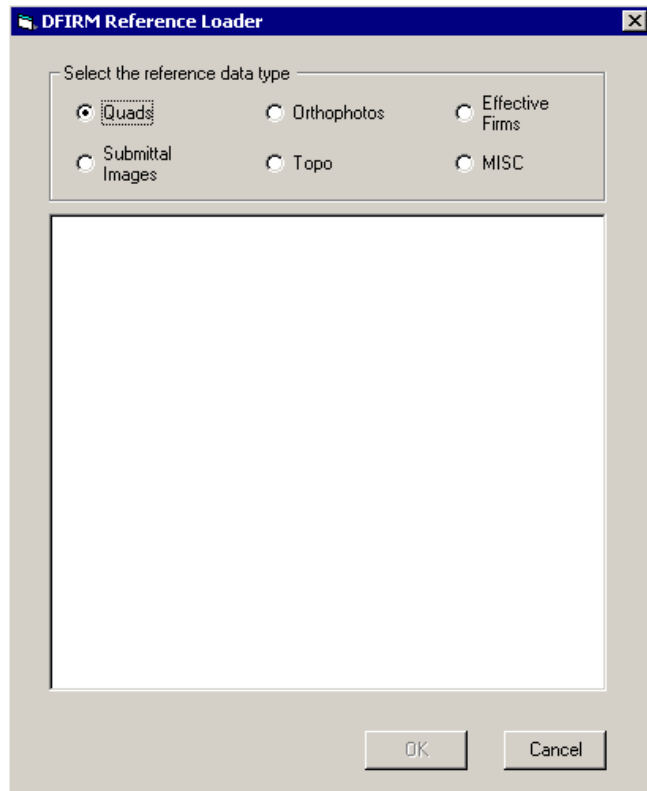
## DFIRM Reference Data Loader

Used to add any additional reference data that does not reside in the SDE geodatabase. This includes: raster catalogs (DOQs or USGS Quads), topo (contour lines), and effective map layouts.

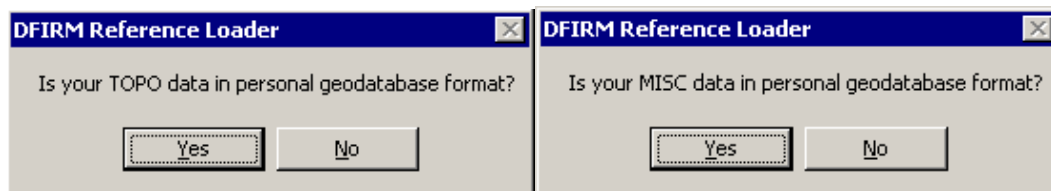
Select type of reference data to load:

Any files of the selected type will be displayed in this box for the user to select from.

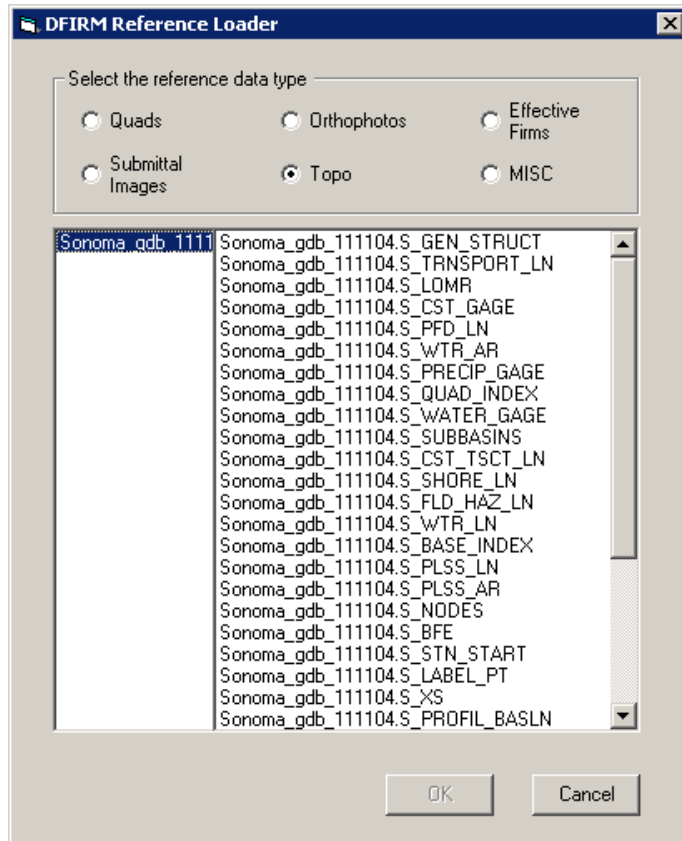
Adds selected data to ArcMap session



If the user selects the "Topo" or "MISC" radio button, then they will receive the following message:

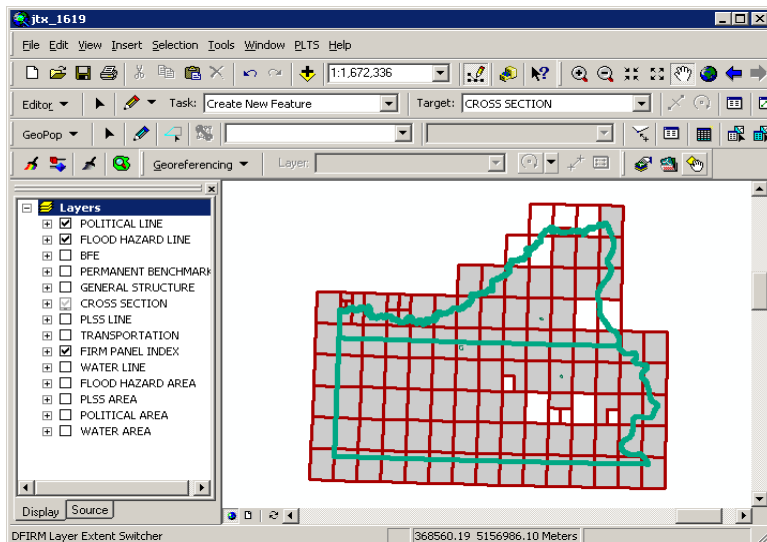


If the user selects "Yes", then the dialog changes to the following, where the user can pick the personal geodatabase and then will be able to choose the feature classes from that geodatabase:



## Show DFIRM Adjacent Area

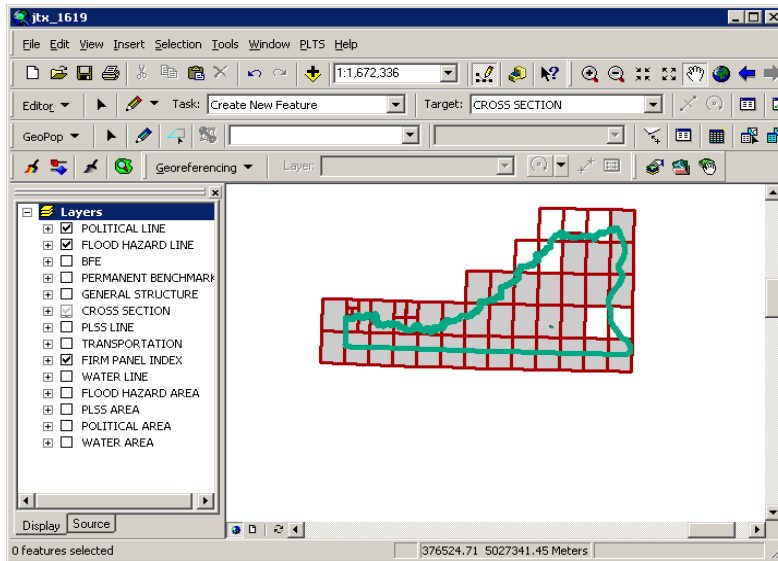
Click on this button to show data for adjacent areas. If data for adjacent areas is loaded into the database, it will be shown. You will not have permission to edit any data in an adjacent area; it is only shown for your reference. Once you select the button, its icon will change to that of the Show Only DFIRM Area tool.





## Show Only DFIRM Area

Click on this button to remove data showing for adjacent areas. Once you select the button, adjacent data will disappear and the button icon will change to that of the Show DFIRM Adjacent Area tool (see above).



## Trouble Shooting

**Problem:** **Feature Type** tool is enabled and not displaying any line types.

**Solution:** Make sure that you use the **Target Layer** dropdown item on the **GeoPop Pro** toolbar when you start an edit session.

**Problem:** Attribute dialog boxes do not appear after a new sketch has been created.

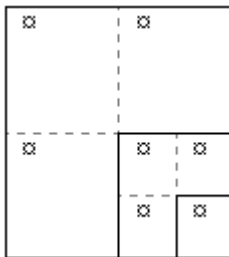
**Solution:** Make sure that you **double-click** to finish creating a new sketch.

**Problem:** The **Panel Index Generator** doesn't work.

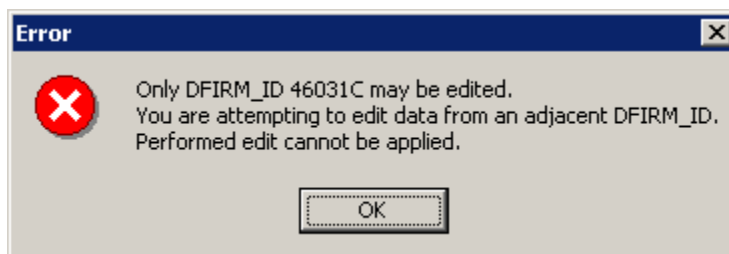
**Solution:** Verify that the corporate limits or political layer (S\_Pol\_Ar) is loaded. If it does not appear in the table of contents, add it to your project using the **DFIRM Layer Data Loader**.

**Problem:** When splitting and merging panels, a panel will not merge properly.

**Solution:** Try performing the splitting and merging of panels in a different order. For instance, if you wanted to make the panel layout shown in the diagram below, there are several ways you could create it. You could do the panel splitting work first and then the merging. Alternatively, you could split the large panel, merge three of the resulting panels and then repeat the process with the fourth panel.



**Problem:** The following error message appears:



**Solution:** You are restricted to editing data that has the same DFIRM ID as the job on which you are working. When you click on OK to accept the message, your editing session will be terminated automatically.

**Problem:** I cannot add a feature to a feature class that is visible (there is a black checkmark in the box next to the name). I have made sure that the layer is selectable.

**Solution:** Some layers have scale dependencies set on them to prevent the addition of features if the scale of the map is too small. Zoom in to a larger scale, such as 1:3000, and try to add the feature with the **GeoPop** tools.

**Problem:** I digitized several features, but when I open the attribute table, many of the fields are "<NULL>".

**Solution:** Make sure that you are using the tools on the **GeoPop** toolbar, and not the tools on the **Editor** toolbar. Also, be sure to wait for the attribute dialog box to open after each feature you create. This will ensure you are attributing all features correctly.

## Contacts

If you need assistance with this tool, please contact your local RSC representative. A list of RSC contacts can be found at [https://hazards.fema.gov/femaportal/resources/rsc\\_contacts.htm](https://hazards.fema.gov/femaportal/resources/rsc_contacts.htm)