



FEMA

DFIRM GeoPop Pro User Guide FEMA DFIRM Production Tools Version 4.0

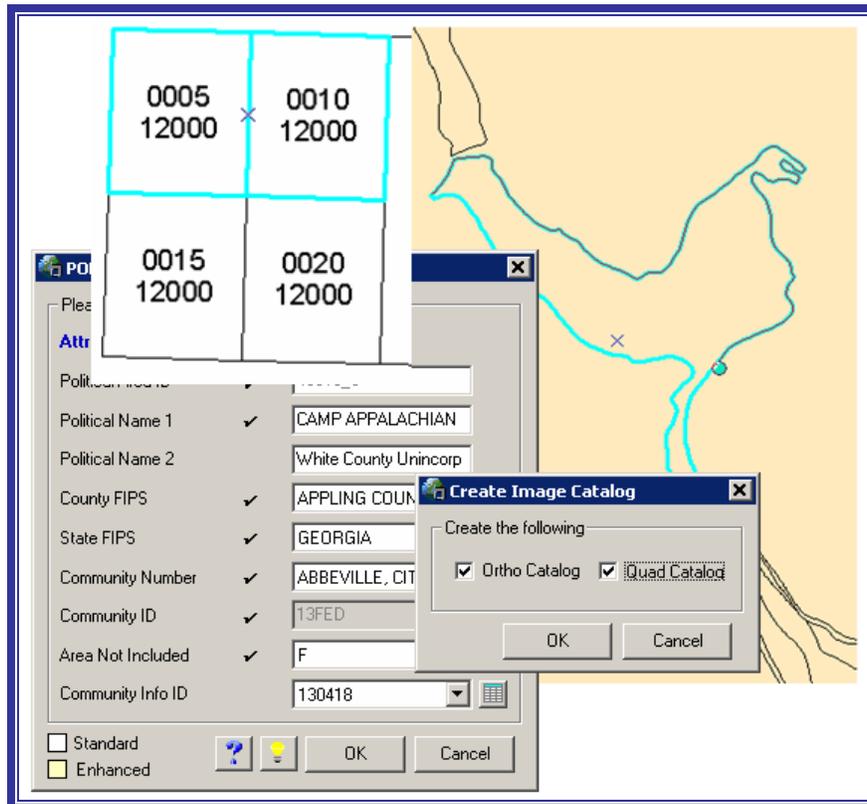


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What is DFIRM GeoPop Pro?

The Federal Emergency Management Agency's (FEMA) *Guidelines and Specifications for Flood Hazard Mapping Partners Appendix L: Guidelines and Specifications for Flood Hazard Partners* (hereon after referred to as FEMA's database specifications) includes the specifications for the DFIRM database. The DFIRM Geodatabase Population Professional (DFIRM GeoPop Pro) tool is a user-friendly application that allows you to easily capture and edit data that meets FEMA's DFIRM database specifications.

DFIRM GeoPop Pro consists of a toolbar that is accessible through ArcMap. Each tool on the toolbar helps to simplify data capture and editing. Some tools are similar to existing ArcMap tools; however, their functionality has been modified by FEMA's National Service Provider (NSP). For instance, the **Create New Feature** tool on the **DFIRM GeoPop Pro** toolbar allows you to attribute each feature as it is created. Other tools generate required features with little user interaction. There are also ESRI tools included for convenience that have not been modified, such as the **Snap Tolerance** tool.



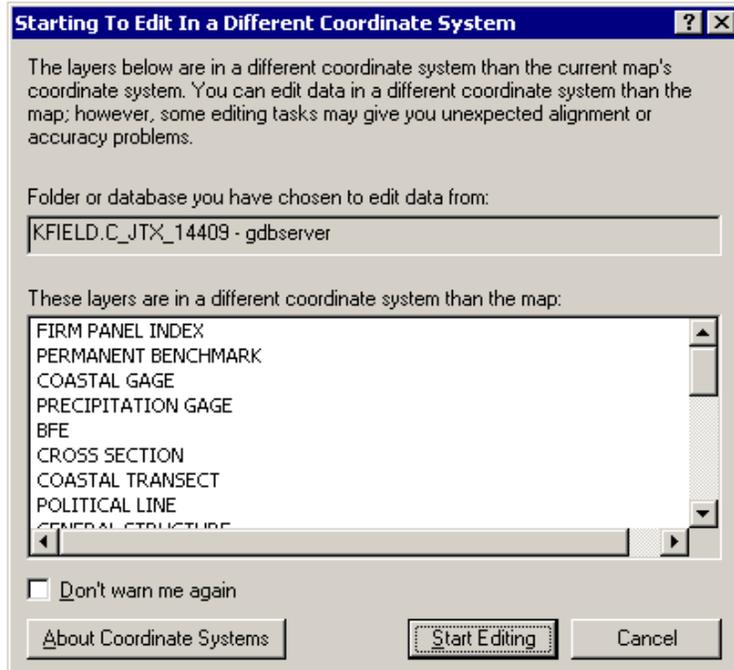
Quick Reference Guide

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

	<u>Edit</u>	Edits features
	<u>Create New Feature</u>	Creates a freehand feature and prompts for attribution population
	<u>Trace</u>	Creates a feature by tracing and prompts for attribution population
	<u>Construct Features</u>	Builds features based on selected features
	<u>Target Layer</u>	Identifies which layer to store features
	<u>Feature Type</u>	Identifies the type of feature to create
	<u>Snap Tolerance</u>	Sets snap tolerance
	<u>Attributes</u>	Shows attribute properties
	<u>Add New Row</u>	Creates a new record in a look-up table
	<u>Attribute Selected Features</u>	Attributes selected features individually
	<u>Attribute All Selected Features</u>	Attributes all selected features
	<u>Panel Divider</u>	Splits selected panel
	<u>Panel Merger</u>	Merges selected panels
	<u>Create Image Catalog</u>	Creates an orthophoto or quad image catalog
	<u>Panel Index Generator</u>	Generates panels for FIRM Panel Index (S_FIRM_Pan)
	<u>Base and Quad Index Generator</u>	Generates features for Base Index (S_Base_Index) and Quad Index (S_Quad_Index)
	<u>Snapping</u>	Shows snapping environment window
	<u>Dangle</u>	Shows dangle window
	<u>Options</u>	Modify the snapping environment

Editing in the JTX Environment

Many of the tools available on the **DFIRM GeoPop Pro** toolbar require that you start an editing session. When you start an editing session, you may see the *Starting To Edit In a Different Coordinate System* dialog.



An example of the Starting To Edit In a Different Coordinate System dialog.

The dialog 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. In the DFIRM Tools environment, the data is stored in a Geographic coordinate system so that all states and territories may be stored in a single nationwide layer. So that your study is in your desired projection for viewing and editing, when ArcMap is launched, the Layers data frame is automatically projected-on-the-fly according to the *PROJECTION_ZONE* (PROJ_ZONE) field value in the Study_Info table. Click on *Start Editing* to accept the warning.

Tool Controls

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

GeoPop Menu



The **GeoPop** button opens the dropdown menu which contains menu items that allow you to create specific features and to set snapping and editing options.

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



Create Image Catalog

The **Create Image Catalog** tool creates an image catalog from the images located in a designated folder on the MIP directory structure. You cannot be in an editing session to use this tool.

1. On the *GeoPop* menu, click **Create Image Catalog**.
2. Choose to create an orthophoto catalog, a quad catalog, or both catalogs by checking the appropriate boxes in the *Create Image Catalog* dialog.



An example of checked options in the Create Image Catalog dialog.

3. Click *OK* to create the catalog(s).

The Ortho Catalog option looks for imagery files stored in the J:\FEMA\

The Quad Catalog option looks for imagery files stored in the J:\FEMA\

Note: If the catalog already exists, a new catalog cannot be created. If you wish to keep the existing catalog and create a new catalog, you will need to navigate to the appropriate folder and rename the existing catalog. If you do not care to keep the existing catalog, you will need to navigate to the appropriate folder and delete the existing catalog file.

Note: If the tool cannot locate image files in the appropriate folder, you will be notified, and the catalog will not be created.

4. Once the processing is complete, the catalog(s) is created.

The orthophoto catalog is stored in the J:\FEMA\

The quad catalog is stored in the J:\FEMA\

5. If desired, you can load the image catalog using the *DFIRM Reference Data Loader* tool on the **DFIRM Layer Loader** toolbar. Refer to the *DFIRM Layer Loader User Guide* for additional information on this tool.



Panel Index Generator

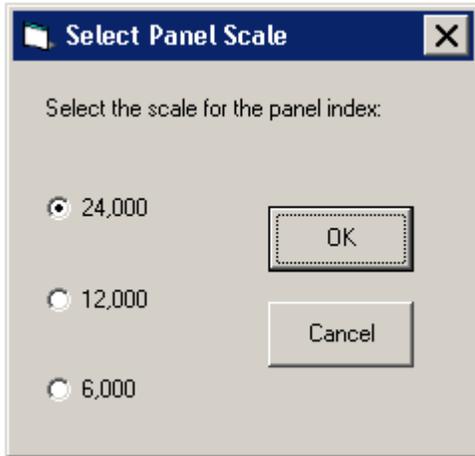
The **Panel Index Generator** tool generates *FIRM Panel Index* (S_FIRM_Pan) features based on the extent of the *Political Area* (S_Pol_Ar) features in your study. The tool provides the option of creating all 24,000-, 12,000-, or 6,000-scale panel features.

When the features are created, the following attribute fields are automatically populated based on study information and spatial location:

- *FIRM ID* (FIRM_ID)
- *STATE FIPS* (ST_FIPS)
- *COMM CNTY ID NUMBER* (PCOMM)
- *PANEL NUMBER* (PANEL)
- *PANEL SUFFIX* (SUFFIX) (defaulted to "A")
- *FIRM PANEL NUMBER* (FIRM_PAN)
- *PANEL SCALE* (SCALE)
- *NW LATITUDE* (NW_LAT)
- *NW LONGITUDE* (NW_LONG)
- *SE LATITUDE* (SE_LAT)
- *SE LONGITUDE* (SE_LONG)

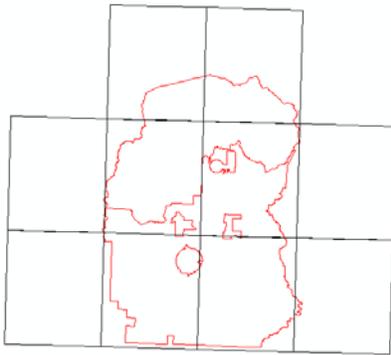
To use the **Panel Index Generator** tool, the *Political Area* (S_Pol_Ar) layer must contain features, and the *FIRM Panel Index* (S_FIRM_Pan) layer must not contain features. To access this tool, you must not be in an editing session.

1. On the *GeoPop* menu, click **Panel Index Generator**.
2. Select a scale from the **Select Panel Scale** dialog. All created *FIRM Panel Index* (S_FIRM_Pan) features will be in the scale that is selected.

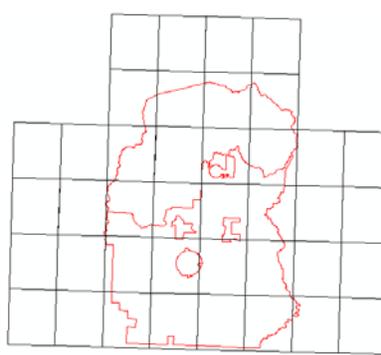


An example of a selected scale in the Select Panel Scale dialog.

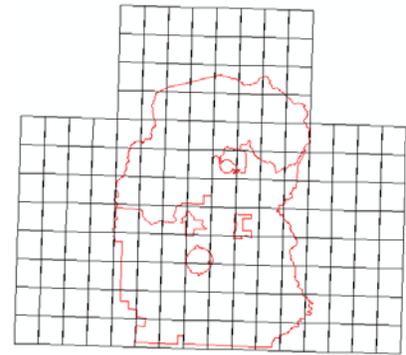
3. Click *OK* to create the features.



An example of a study with newly created 24,000-scale panels.



An example of a study with newly created 12,000-scale panels.



An example of a study with newly created 6,000-scale panels.

Note: Regardless of the selected scale, the *FIRM Panel Index* (S_FIRM_Pan) features are created for the full extent of the 24,000-scale panels.

Note: If *FIRM Panel Index* (S_FIRM_Pan) features already exist, you will be notified of the error, and no new *FIRM Panel Index* (S_FIRM_Pan) features will be created.

Note: If there are no existing *Political Area* (S_Pol_Ar) features, you will be notified of the error, and no new *FIRM Panel Index* (S_FIRM_Pan) features will be created.

4. Once the *FIRM Panel Index* (S_FIRM_Pan) features are created, populate the remaining attribute fields with the *Attribute Selected Features* or *Attribute All Selected Features* tool.

Note: It is important that the entire FIRM Panel Index (S_FIRM_Pan) layer be populated as other tools, including *Render Using VVT Symbology* and **DFIRM Map Production Pro**, utilize the attribute values during their processing.



Base and Quad Index Generator

The **Base and Quad Index Generator** tool uses the study's data to create features for the *Base Index* (S_Base_Index) and *Quad Index* (S_Quad_Index) layers. The tool's first step is to create features for *Quad Index* (S_Quad_Index). The study's *Political Area* (S_Pol_Ar) features are used to define the area of interest for the *Quad Index* (S_Quad_Index) features. It is important to note that the newly created *Quad Index* (S_Quad_Index) features are based upon the spatial extents of the USGS Topographic Quadrangles.

The **Base and Quad Index Generator** tool automatically populates the following fields in the Quad Index (S_Quad_Index) layer:

- *QUAD ID* (QUAD_ID)
- *QUAD NUMBER* (QUAD_NO)
- *QUAD NAME* (QUAD_NM)
- *SOURCE CITATION* (SOURCE_CIT)*
- *Based on user input

Once the *Quad Index* (S_Quad_Index) features are created, the **Base and Quad Index Generator** tool automatically begins to create the *Base Index* (S_Base_Index) features. During this processing step, the tool looks for imagery files stored in the J:\FEMA\<Region>\<State>\<County>\<County or Community>\Ortho folder. If no imagery files are found, the tool stops processing, and no *Base Index* (S_Base_Index) features are created. If imagery files are found, the tool uses the image's spatial extent and projection to create a polygon that represents its spatial location. In order for the tool to accurately create the polygon, the image must have a defined coordinate system. The tool automatically populates the following fields in the *Base Index* (S_Base_Index) layer:

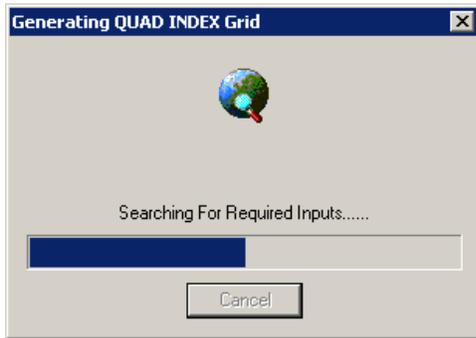
- *BASE ID* (BASE_ID)
- FILENAME
- BASE_DATE*
- *SOURCE CITATION* (SOURCE_CIT)*
- *Based on user input

If features already exist in the *Quad Index* (S_Quad_Index) layer and/or *Base Index* (S_Base_Index) layer, the tool will overwrite the existing features. Additionally, before beginning, you should ensure that the L_Source_Cit table contains all of the needed source citations. The **Base and Quad Index Generator** tool is available inside and outside of an editing session.

Note: If you are in an editing session when you use this tool, the tool will end your editing session after the process is complete.

Note: Neither the *Base Index* (S_Base_Index) layer nor the *Quad Index* (S_Quad_Index) layer must be loaded into the ArcMap Table of Contents for the tool to process; the tool is able to access the data layers behind the scenes.

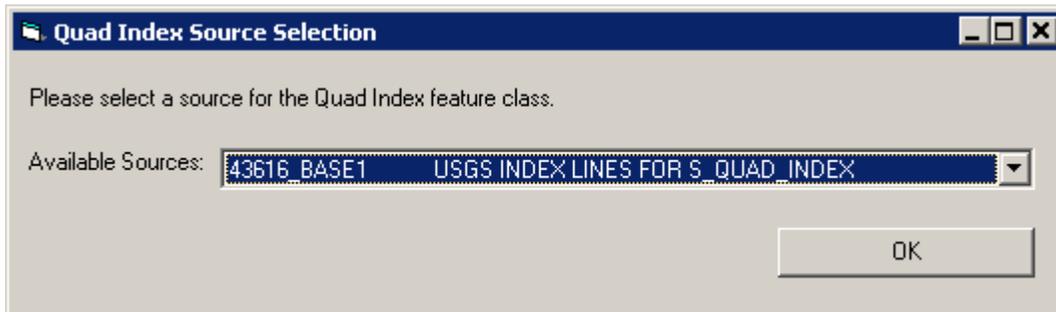
1. On the *GeoPop* menu, click **Base and Quad Index Generator**.
2. The tool will begin to create the *Quad Index* (S_Quad_Index) features. While the tool is processing, a status bar is visible on-screen.



An example of the Generating QUAD INDEX Grid processing status bar.

Note: If there are no existing *Political Area* (S_Pol_Ar) features, the tool will notify the user of the error, and no new *Quad Index* (S_Quad_Index) and *Base Index* (S_Base_Index) features will be created.

3. During the *Quad Index* (S_Quad_Index) creation process, select an appropriate source citation from the *Available Sources:* list in the **Quad Index Source Selection** dialog. The *Available Sources:* list contains all of the records in the L_Source_Cit table.



An example of the Quad Index Source Selection dialog.

Note: If the source that you need is not present in the *Available Sources:* list, you should add the appropriate record to the L_Source_Cit table with the **Add New Row** tool and then use the **Base and Quad Index Generator** tool to create your *Quad Index* (S_Quad_Index) and *Base Index* (S_Base_Index) features.

4. Click *OK*.

Note: If you click the "X" button in the upper right hand corner of the dialog, the *Quad Index* (S_Quad_Index) creation process will be cancelled; no features will be added to the *Quad Index*

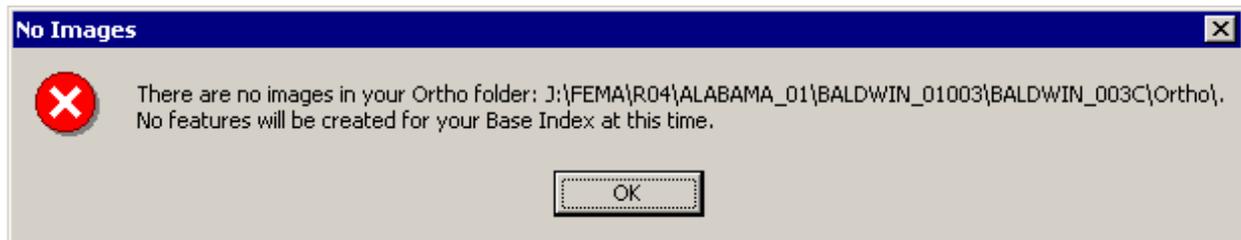
(S_Quad_Index) layer. The tool will then move directly to the *Base Index* (S_Base_Index) creation process.

5. The tool will begin to create the *Base Index* (S_Base_Index) features. While the tool is processing, a status bar is visible on-screen.



An example of the Generating Base INDEX Grid processing status bar.

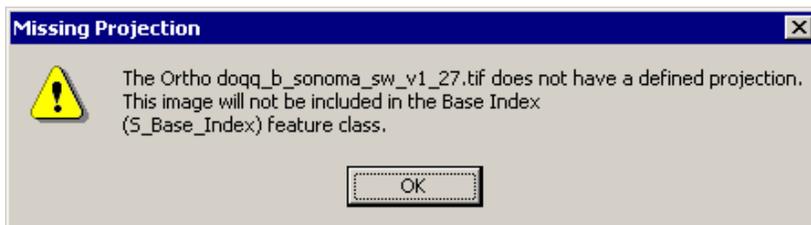
6. If there are no imagery files found in the appropriate MIP directory structure folder, you will receive a notification message stating that imagery files could not be found. The tool processing is now complete. At this point *Quad Index* (S_Quad_Index) features have been created. *Base Index* (S_Base_Index) features have not been created.



An example of the imagery not found notification message.

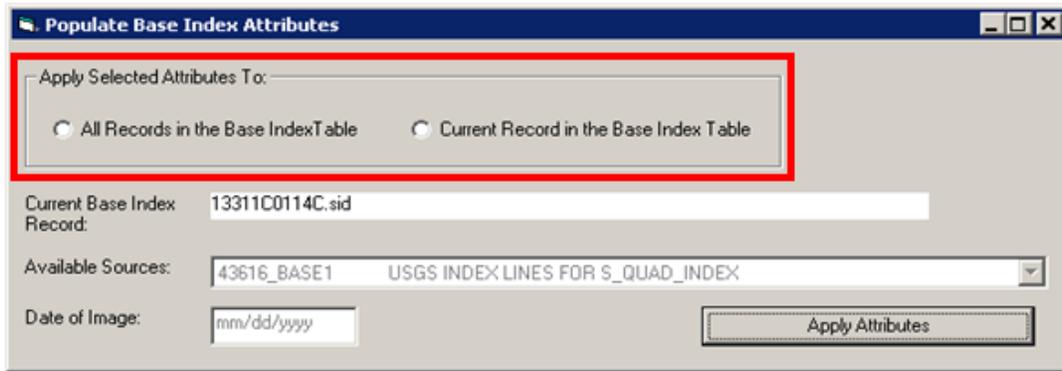
7. If imagery files are found, the *Base Index* (S_Base_Index) spatial features are created.

If an image does not have a defined projection, the tool will generate a notification stating that the projection cannot be determined. The tool will then cycle to the next imagery file. The notification will be generated once for every image that does not contain a projection.



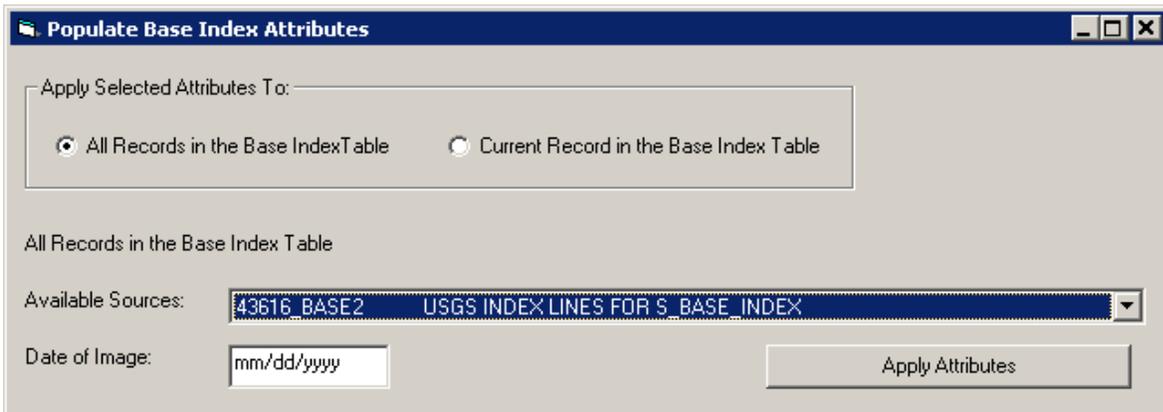
An example of the missing projection notification message.

8. Once the *Base Index* (S_Base_Index) spatial features are created, select to apply the attribute information to all of the features in the layer or select to cycle through each feature for individual attribution.



An example of the Apply Selected Attributes To section of the Populate Base Index Attributes dialog.

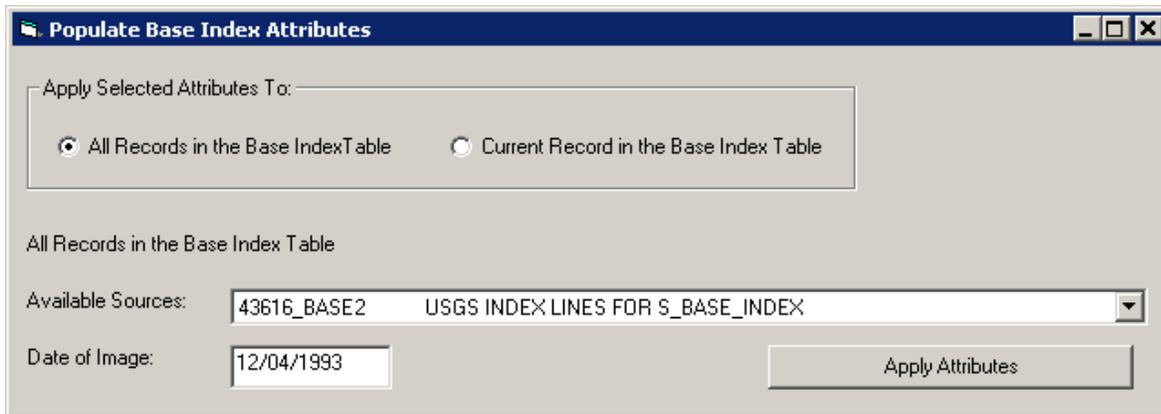
- If you selected the *All Records in the Base Index Table* option, the reference to the individual imagery file is removed. Additionally, the *Available Sources:* list and *Date of Image:* input box become active. Select the appropriate source from the *Available Sources:* list. The *Available Sources:* list contains all of the records in the L_Source_Cit table.



An example of a source in the Available Sources: list for the All Records in the Base Index Table option.

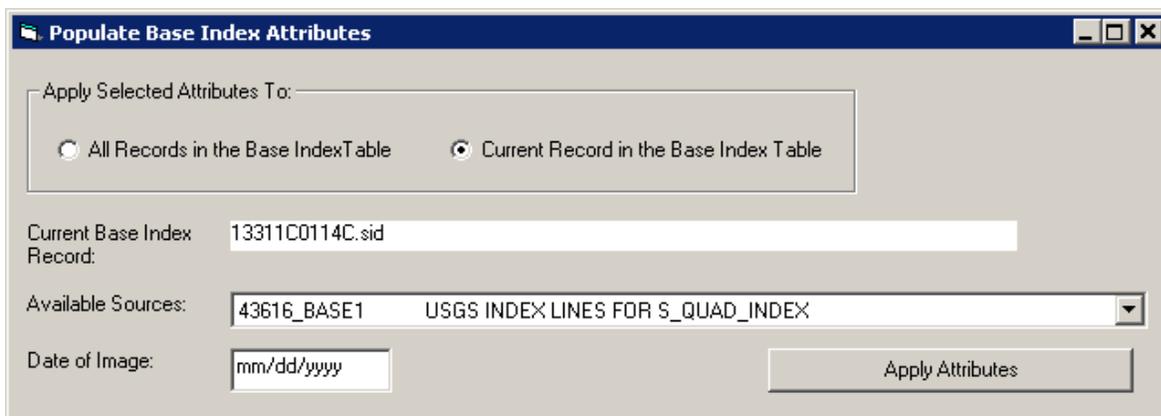
Note: If the source that you need is not present in the *Available Sources:* list, you should add the appropriate record to the L_Source_Cit table with the *Add New Row* tool and then use the **Base and Quad Index Generator** tool to create your *Quad Index* (S_Quad_Index) and *Base Index* (S_Base_Index) features.

- Enter the date in which the image was created into the *Date of Image:* input box. The date must be entered in mm/dd/yyyy format (e.g., 07/31/2001).



An example of a date in the Date of Images: input box for the All Records in the Base Index Table option.

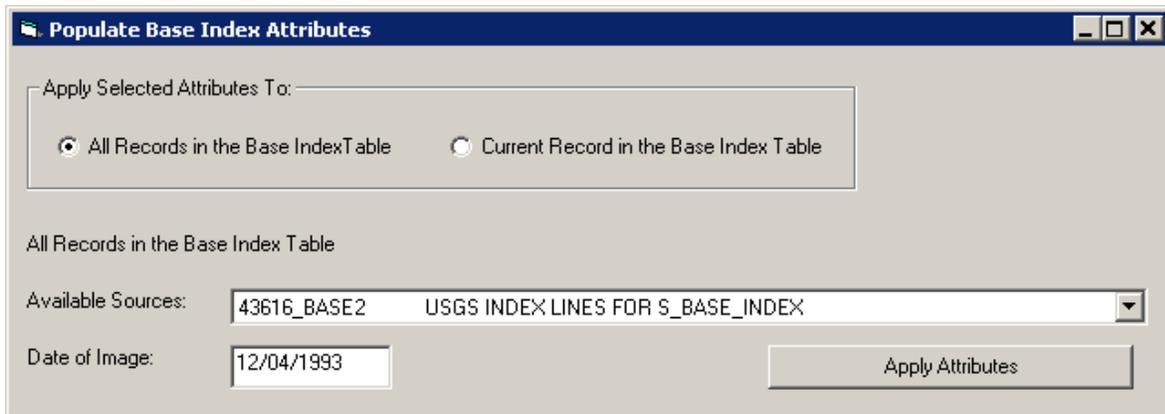
11. If you selected the *Current Record in the Base Index Table* option, the *Available Sources:* list and *Date of Image:* input box become active. Select the appropriate source from the *Available Sources:* list for the image referenced in the *Current Base Index Record:* input box. The *Available Sources:* list contains all of the records in the L_Source_Cit table.



An example of a source in the Available Sources: list for the Current Record in the Base Index Table option.

Note: If the source that you need is not present in the *Available Sources:* list, you should add the appropriate record to the L_Source_Cit table with the *Add New Row* tool and then use the **Base and Quad Index Generator** tool to create your *Quad Index* (S_Quad_Index) and *Base Index* (S_Base_Index) features.

12. Enter the image creation date for the image referenced in the *Current Base Index Record:* input box. The date must be entered in mm/dd/yyyy format (e.g., 07/31/2001).



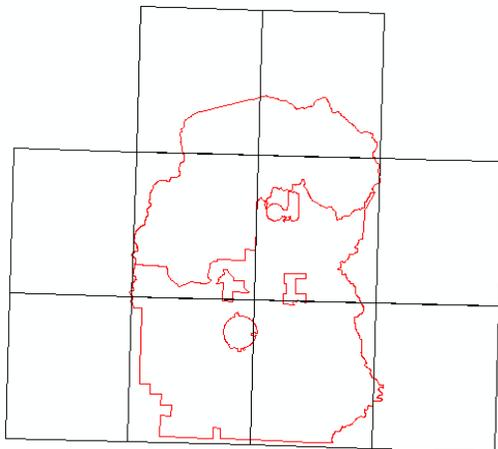
An example of a date in the Date of Images: input box for the Current Record in the Base Index Table option.

13. Click *Apply Attributes*.

Note: When the *Populate Base Index Attributes* dialog appears on screen, all of the *Base Index* (S_Base_Index) features have been created. If you click the "X" button in the upper right hand corner of the dialog, the *Base Index* (S_Base_Index) feature attribution process will be cancelled. At this point if you have not assigned attributes by clicking the *Apply Attributes* button, none of the *Base Index* (S_Base_Index) features will be attributed. If you opted to cycle through the features to attribute them individually and have clicked the "X" button in the middle of this process, all field values already committed via the *Apply Attributes* button will remain populated; the features not yet cycled through will not be attributed.

14. If you selected the *Current Record in the Base Index Table* option, the tool will now cycle through all of the available imagery files. Select the appropriate source and enter the relative image creation date, and click *Apply Attributes*. Repeat until all images have been processed.

15. The *Quad Index* (S_Quad_Index) and *Base Index* (S_Base_Index) features have been created.

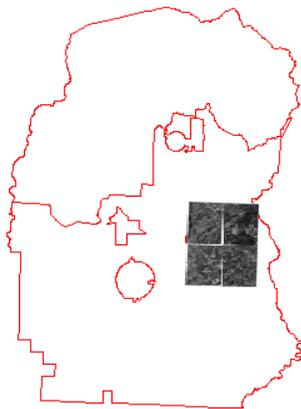


An example of Quad Index (S_Quad_Index) layer features.

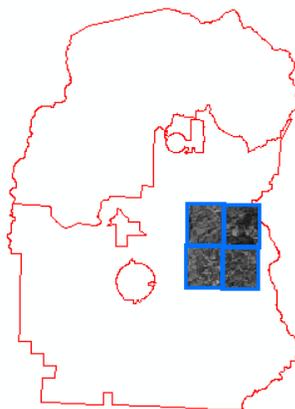
OBJECTID	QUAD ID	QUAD NUMBER	QUAD NAME	SOURCE CITATION*	
1	8k<<30	41444	34083-F6	Helen	43616_BASE1
6	1 8k<<30	42803	34083-E5	Clarksville	43616_BASE1
6	1 8k<<30	41450	34083-F8	Neels Gap	43616_BASE1
6	1 8k<<80	41436	34083-F7	Cowrock	43616_BASE1
6	1 8k<<30	42200	34083-G6	Tray Mountain	43616_BASE1
6	1 8k<<90	41446	34083-G7	Jacks Gap	43616_BASE1
6	1 8k<<D0	41434	34083-F5	Clarksville NE	43616_BASE1
6	1 8k<<E0	42805	34083-E8	Dahlonega	43616_BASE1
6	1 8k<<D0	42804	34083-E7	Cleveland	43616_BASE1
6	1 8k<<80	42808	34083-F6	Leaf	43616_BASE1

An example of Quad Index (S_Quad_Index) layer attribute table.

Note: Since the 24,000-scale *FIRM Panel Index* (S_FIRM_Pan) features are based upon the USGS Topographic Quadrangle extents, the features in the *Quad Index* (S_Quad_Index) layer are spatially identical to the 24,000-scale *FIRM Panel Index* (S_FIRM_Pan) features in your study.



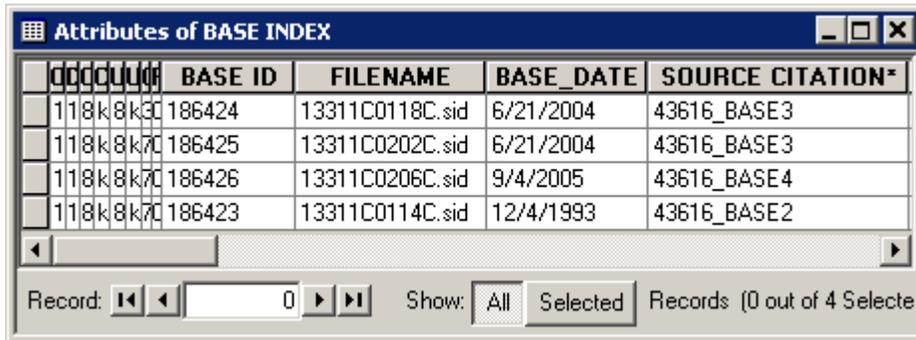
An example of orthophoto spatial location.



An example of Base Index (S_Base_Index) features for the available orthophotos.

OBJECTID	BASE ID	FILENAME	BASE_DATE	SOURCE CITATION*
1	118k8k7C	13311C0118C.sid	12/4/1993	43616_BASE2
2	118k8k7C	13311C0202C.sid	12/4/1993	43616_BASE2
3	118k8k7C	13311C0206C.sid	12/4/1993	43616_BASE2
4	118k8k7C	13311C0114C.sid	12/4/1993	43616_BASE2

An example of Base Index (S_Base_Index) layer attribute table when values were applied to all records.



OBJECTID	BASE ID	FILENAME	BASE_DATE	SOURCE CITATION*
118k8k3	186424	13311C0118C.sid	6/21/2004	43616_BASE3
118k8k7	186425	13311C0202C.sid	6/21/2004	43616_BASE3
118k8k7	186426	13311C0206C.sid	9/4/2005	43616_BASE4
118k8k7	186423	13311C0114C.sid	12/4/1993	43616_BASE2

An example of Base Index (S_Base_Index) layer attribute table when unique values were applied to the records.

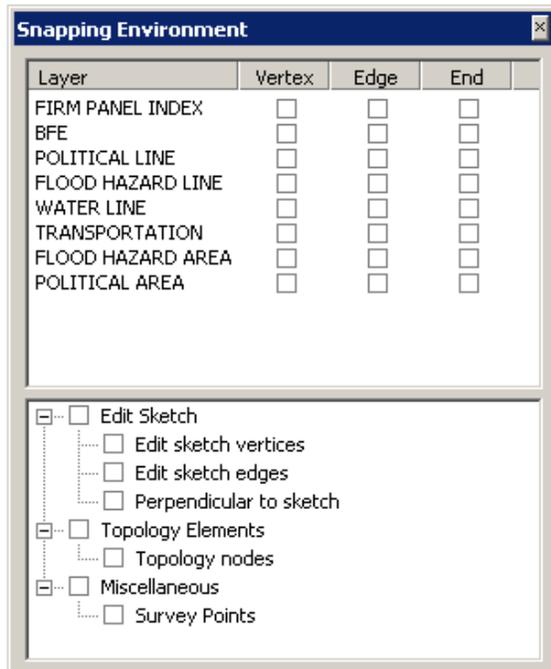
Note: If you wish to edit the attribute values for the *Quad Index* (S_Quad_Index) or *Base Index* (S_Base_Index) layer, you should either use standard ArcMap editing functionality or you should re-create the features with the **Base and Quad Index Generator** tool. You may not edit the attribute values with the *Attribute Selected Features* or the *Attribute All Selected Features* tool.

Snapping

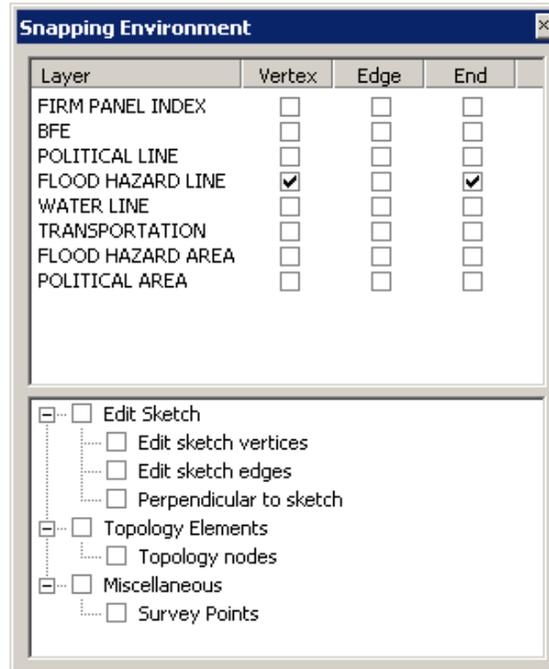
The **Snapping** tool opens and closes the *Snapping Environment* dialog. Snapping allows you to designate if the edited feature will connect to the vertex, edge, or end of another feature. You may also elect whether the feature being edited is able to snap to its own edge or vertex. The order of the feature layers defines the priority of the snapping. By dragging layers up and down in the Table of Contents, the snapping priority will change. It is important to note that even when the Snapping Environment window is closed, the snap-related properties are still active; you must unselect the relative checkboxes to discontinue snapping. You must be in an editing session to access this tool.

Note: The **Snapping** tool is a standard ESRI tool; this tool was not modified by the NSP. This same tool may be accessed from the *Editor* menu on the **Editor** toolbar.

1. On the *GeoPop* menu, click **Snapping**.
2. Within the *Snapping Environment* dialog, check the appropriate properties.



An example of the Snapping Environment window with no properties selected.



An example of the Snapping Environment window with properties selected.

Note: Only the spatial layers loaded into your active ArcMap session will be available in the *Snapping Environment* window.

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

Note: This tool is especially useful for snapping *Flood Hazard Line* (S_Fld_Haz_Ln) features together and for snapping *BFE* (S_BFE) features to the 1% annual chance flood hazard event features in the *Flood Hazard Line* (S_Fld_Haz_Ln) layer.

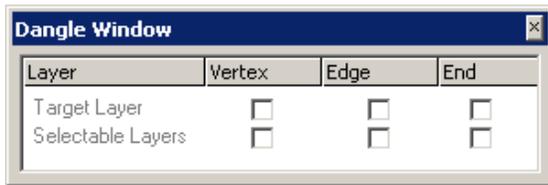
Note: For additional information on the Snapping tool, please refer to ESRI documentation.

Dangle

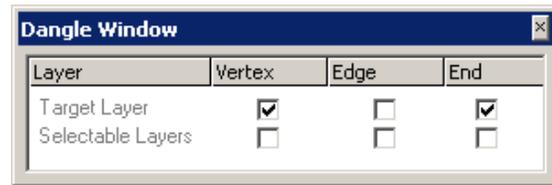
The **Dangle** tool opens and closes the *Dangle* environment window. This tool allows you to display dangle-related errors. If the selected polyline features are not connected to the vertex, edge, or end of another polyline feature, the node is highlighted. You may choose to display errors for the target layer, which must have a polyline geometry type, or may choose to display errors in all selectable polyline geometry types. It is important to note that even when the *Dangle* window is closed, the dangle-related properties are still active; you must unselect the relative checkboxes to no longer display the dangle nodes. To use this tool, you must be in an editing session.

1. On the *GeoPop* menu, click **Dangle**.

2. Within the **Dangle Window**, check the appropriate properties.



An example of the Dangle Window with no properties selected.



An example of the Dangle Window with properties selected.

Note: Even though the Target Layer and Selectable Layers layer types are gray, they are not disabled; you may check and uncheck the properties.

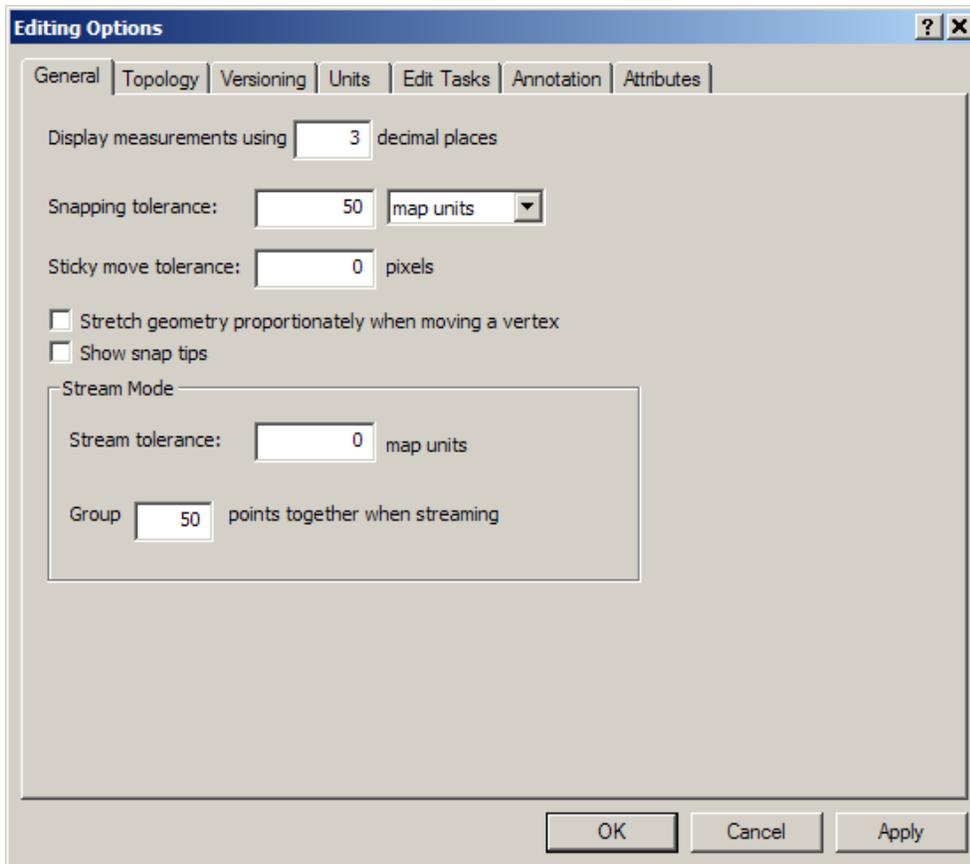
Note: The dangle properties are effective as soon as they are checked or unchecked.

Options

The **Options** tool displays the options for the ArcMap editing environment. Most of the time, you will only use the options that appear under the **General** tab. This tool is available inside and outside of an editing session.

Note: The **Options** tool is a standard ESRI tool; this tool was not modified by the NSP. This same tool may be accessed from the *Editor* menu on the **Editor** toolbar.

1. On the **GeoPop** menu, click **Options**.
2. Within the **Editing Options** dialog, set the desired editing options.



An example of the Editing Options dialog.

Note: It is recommended that the units of the snapping tolerance are set to map units.

3. Click *OK*.
4. The editing properties are now effective.



Edit Tool

The **Edit Tool** 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. You must be in an editing session to access this tool.

Note: The **Edit Tool** is a standard ESRI tool; this tool was not modified by the NSP. This same tool may be accessed on the **Editor** toolbar.

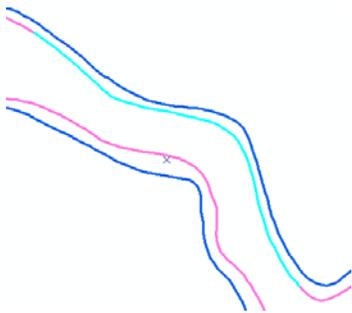
1. Click the **Edit Tool** button.

Note: You should be in Data View when creating or editing data.

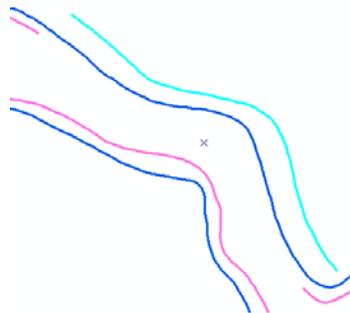
2. Move the pointer over a feature and click the mouse. The feature should be highlighted.

Note: Only features in selectable layers may be selected. To modify the list of selectable layers, click *Selection > Set Selectable Layers*, check and uncheck layers as appropriate, and click *OK*. Consider setting only those layers that are currently being edited to selectable to reduce the risk of accidental edits and to simplify the editing process.

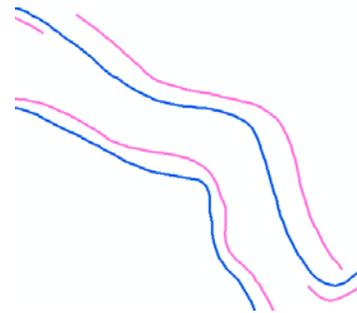
3. Hold the *Shift* key down while you click to select multiple features. You can also click and drag a box to select multiple features.
4. Hold the *space bar* key down while you click to select a subset of features that are already selected.
5. If you have multiple features selected, you may move or delete the entire selection set.



An example of multiple selected features.

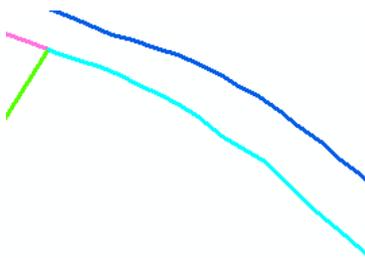


An example of the selected set moved to a new location.

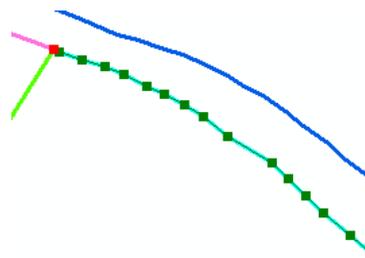


An example of a selection set feature modified with the Edit Tool.

6. If you have a single feature selected, you may double-click on the feature to display the feature's vertices.



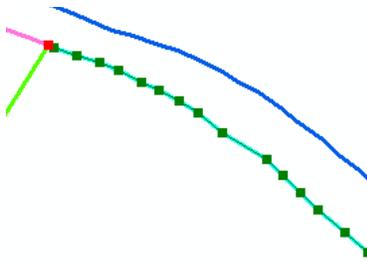
An example of a feature selected with the Edit Tool.



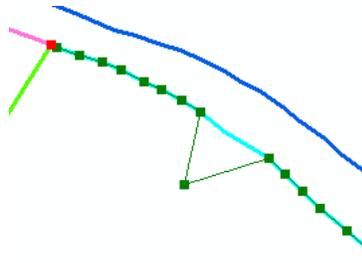
An example of displayed vertices for a selected feature.

Note: The vertices are shown as green squares, except for the end vertex which is displayed as a red square.

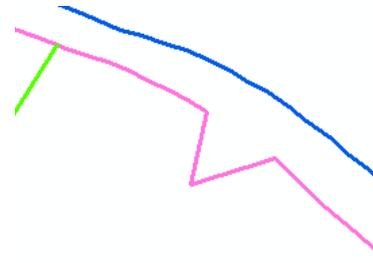
7. At a vertex, use the mouse to modify the spatial location.



An example of displayed vertices for a selected feature.



An example of a modified vertex for a selected feature.



An example of a feature modified with the Edit Tool.

8. To view the *Sketch Context* menu, right-click while the vertices are displayed.

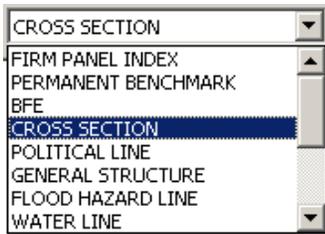


An example of the Sketch Context menu.

Target Layer

The **Target Layer** tool sets the map layer that contains the features you want to create or edit. In setting the target layer, the *Feature Type* dropdown list is enabled/disabled based on whether the target layer has specific feature types that can be created. You must be in an editing session to access this tool.

1. Click on the appropriate layer in the **Target Layer** dropdown list to select it.



An example of setting the Target Layer.

Note: The *Target*: list on the **Editor** toolbar and the **Target Layer** list on the **DFIRM GeoPop Pro** toolbar are linked. When the selected layer in one of the lists is modified, the other list automatically updates to contain the same layer.

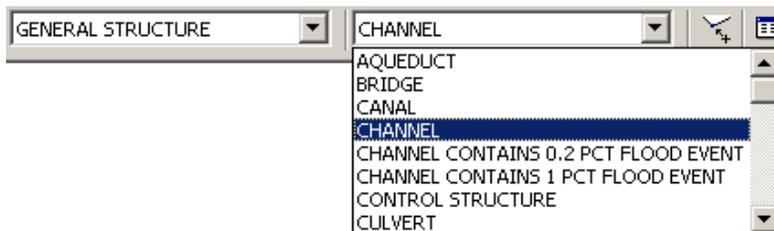
Feature Type

The **Feature Type** tool defines the specific type of feature that will be created. This tool is only applicable when the current target layer is *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 target layer is selected. You must be in an editing session to access this tool

1. Select an appropriate layer in the *Target Layer* dropdown list.
2. If the selected target layer has related feature types, the **Feature Type** tool will be enabled. Select a feature type from the **Feature Type** dropdown list.

Target Layer

Feature Type



An example of a selected Feature Type.

Note: Setting the **Feature Type** is most applicable when creating a new feature with the *Create New Feature* tool or *Trace* tool.



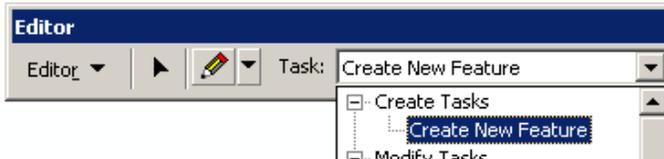
Create New Feature

The **Create New Feature** tool adds features to the defined target layer. The geometry type (i.e., point, line, polygon) is dependent upon the target layer. Once the spatial feature is created, the

related dialog prompts you to populate the feature's attribute fields. You must be in an editing session to access this tool.

Note: The **Create New Feature** tool is a NSP-modified version of ESRI's *Sketch Tool* available on the **Editor** toolbar. The two tools have the same feature creation functionality with the exception that the **Create New Feature** tool triggers an attribute population dialog while the *Sketch Tool* does not.

1. Select the *Create New Feature* task listed in the **Task:** dropdown list on the **Editor** toolbar.



An example of the Create New Feature task item.

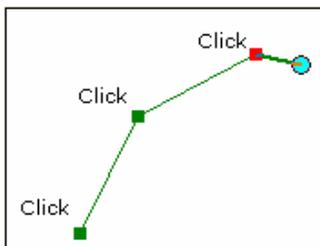
2. Select the appropriate layer in the **Target Layer** dropdown list on the **DFIRM GeoPop Pro** toolbar.
3. If the **Feature Type** tool is enabled, select the appropriate feature type.

Note: Consider setting the snapping properties with the *Snapping* tool to ensure connectivity before creating the spatial feature.

4. Click **Create New Feature**.

Note: You should be in Data View when creating or editing data.

5. Click on the map to sketch a new feature.



An example of creating a new feature with the Create New Feature tool.

6. Double-click to finish the sketch.
7. Once the new spatial feature has been created, the feature's related attribute population dialog will appear.

Attribute	Req?	Value
Political Area ID	✓	1471990_8
Political Name 1	✓	
Political Name 2		
County FIPS	✓	AUTAUGA COUNTY
State FIPS	✓	ALABAMA
Community Number	✓	ABBEVILLE, CITY O
Community ID	✓	010259
Area Not Included	✓	T
Community Info ID		130192

An example of a Create New Feature attribute population dialog.

There is a specific dialog for the majority of the spatial layers. The dialog is designed to ease the attribute population process by providing helpful information, auto-populating the attribute field input box where applicable, and linking to related domain and look-up tables. Refer to the *Create New Feature Dialog Specification* section of this document for additional information about the options and functionality within the **Create New Feature** dialog.

Note: Some layers do not have an associated **Create New Feature** dialog. The layers which do not have a **Create New Feature** dialog are: *Base Index* (S_Base_Index), *Label Lead* (S_Label_Ld), *Label Point* (S_Label_Pt), and *Quad Index* (S_Quad_Index). These features should be created through the **Base and Quad Index Generator** tool and the tools on the **DFIRM Database Exporter** toolbar. If you click the **Create New Feature** tool when one of these layers is the target layer, no dialog will be prompted.

8. Populate the attribute field input boxes as appropriate.

Attribute	Req?	Value
Political Area ID	✓	1471990_8
Political Name 1	✓	City of Helen
Political Name 2		
County FIPS	✓	WHITE COUNTY
State FIPS	✓	GEORGIA
Community Number	✓	HELEN, CITY OF
Community ID	✓	130192
Area Not Included	✓	F
Community Info ID		130192

An example of a fully populated Create New Feature dialog.

9. Click *OK*.

10. The values in the input boxes are committed to the attribute table for the newly created feature.

POLITICAL AREA ID	POLITICAL NAME 1	POLITICAL NAME 2	COUNTY FIPS	STATE FIPS	COMMUNITY NUMBER	COMMUNITY ID	AREA NOT INCLUDED	COMMUNITY INFO ID
1471990_8	CITY OF HELEN	<Null>	311	13	0192	130192	F	130192

An example of a populated attribute table for the newly created feature.

For additional information on how the values are saved to the attribute table, refer to the *Create New Feature OK Button Specifications* section of this document.

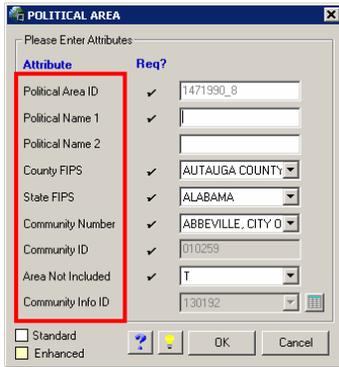
Note: If you click the *Cancel* button, none of the input box values will be saved to the attribute table. Clicking the *Cancel* button does not cancel the creation of the spatial feature; the feature is created, but its record in the attribute table is not populated.

Note: If you use the *Cancel* button during your feature creation process in the current editing session, you will need to save your edits via the *Save Edits* tool on the **Editor** toolbar. If you do not use the *Cancel* button during the editing session, your edits will automatically be saved.

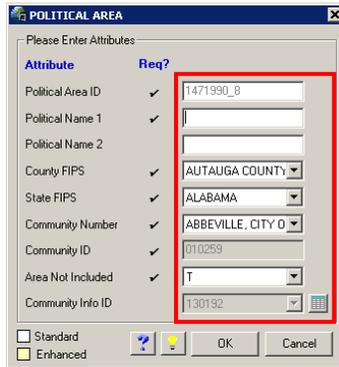
Create New Feature Dialog Specifications

Layer Attribute Fields

Each dialog contains a list of the attribute fields defined in FEMA's database specifications. The NSP-added attribute fields are also included in the list. These attribute fields are accompanied by an input box which stores the attribute value.



An example of the listed attribute fields.



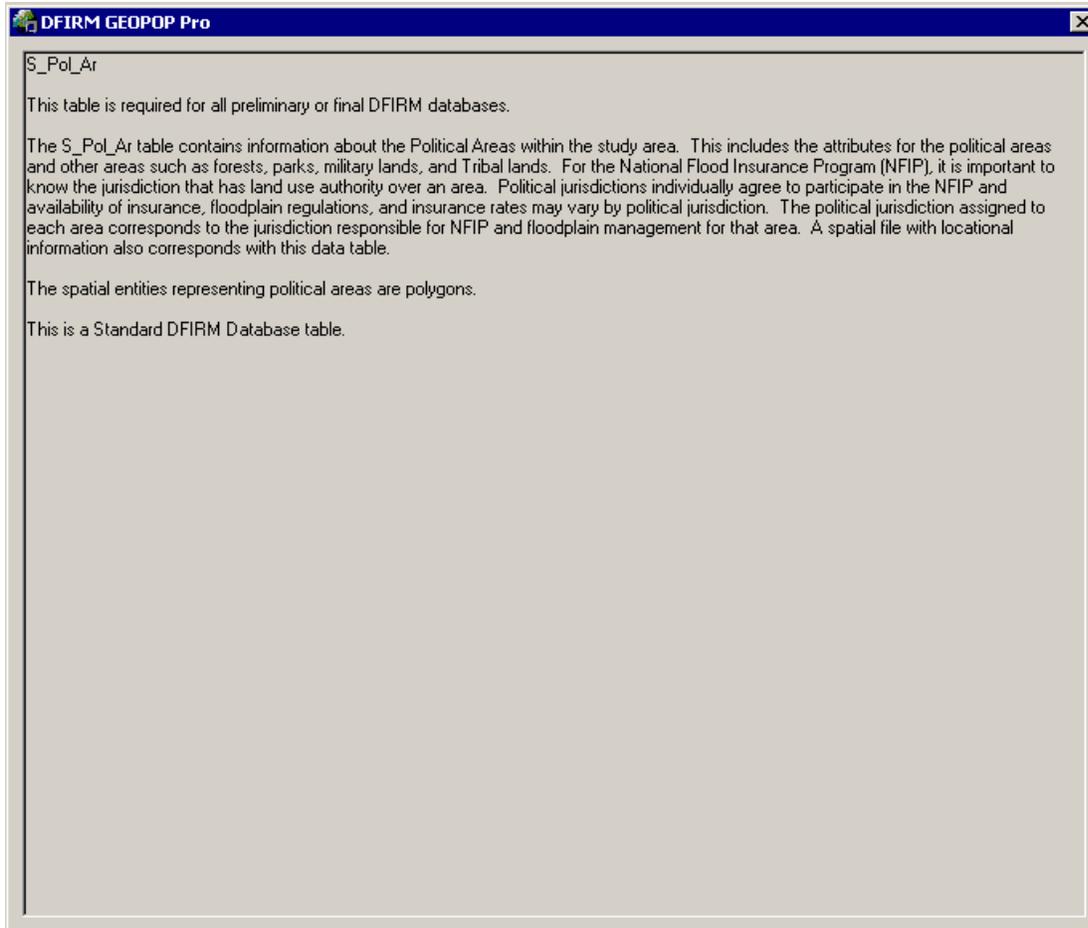
An example of the related input boxes.

Help Information

In order to help you understand the layer and attribute fields, helpful descriptions are accessed via the dialog. In general, the description text is based on the information defined in FEMA's database specifications.

To access the help information for the layer:

1. Click the layer's help button .
2. The **DFIRM GEOPOP Pro** information dialog box appears on-screen. The dialog contains the information for the appropriate layer.

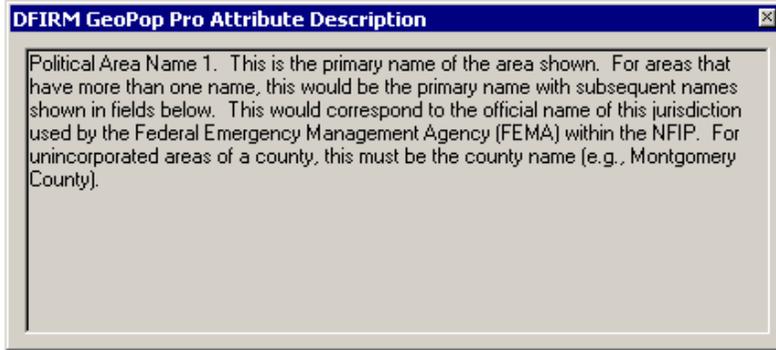


An example of help information for the layer.

3. When you are finished with the information, click the **X** button in the upper right-hand corner to close the dialog.

To access the help information for the individual attribute field:

1. Click on the attribute field name in the Attribute list. For instance, if you wanted to see the help information for the Political Name 1 attribute field, you would click on the words "Political Name 1" in the dialog.
2. The **DFIRM GeoPop Pro Attribute Description** information dialog box appears on-screen. The dialog contains the information for the appropriate attribute field.



An example of help information for the attribute field.

- When you are finished with the information, click the **X** button in the upper right-hand corner to close the dialog.

Standard and Enhanced Fields

According to FEMA's database specifications, all attribute fields are defined as being either part of the Standard DFIRM Database or part of the Enhanced DFIRM Database. Based upon your agreement with FEMA, you may or may not be required to submit the data related to the Enhanced DFIRM Database. So that the Standard/Enhanced fields are easily identifiable, each attribute field input box in the dialog has been color-coded accordingly. If the input box is colored white, the attribute field belongs to the Standard DFIRM Database. If the input box is colored yellow, the attribute field belongs to the Enhanced DFIRM Database.

Attributes	Req?	Value
XS ID	✓	1471990_266
XS Letter		
Station Start ID	✓	STREAM DISTANCE
Stream Station	✓	
XS Line Type	✓	LETTERED
Water Name	✓	
WSEL Regulatory	✓	
Length Unit	✓	FEET
Vertical Datum	✓	NAVD88
Source Citation	✓	43616_BASE1
Bed Elevation	✓	
Top Width	✓	
XS Area	✓	
Area Unit	✓	HECTARES
Velocity	✓	
Velocity Unit	✓	CENTIMETERS / HI

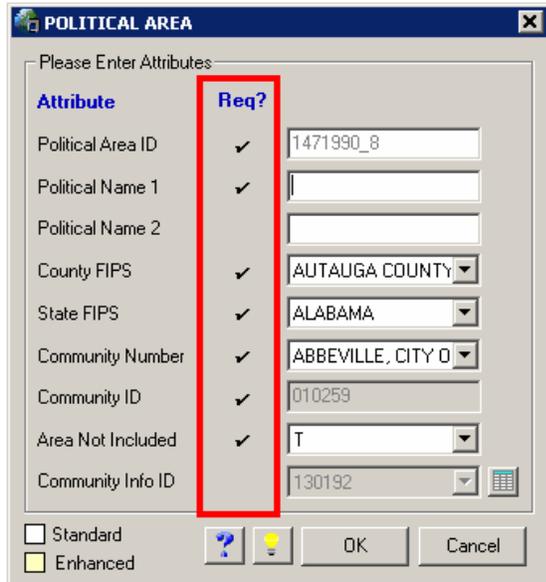
An example of a Standard DFIRM Database field.

Attributes	Req?	Value
XS ID	✓	1471990_266
XS Letter		
Station Start ID	✓	STREAM DISTANCE
Stream Station	✓	
XS Line Type	✓	LETTERED
Water Name	✓	
WSEL Regulatory	✓	
Length Unit	✓	FEET
Vertical Datum	✓	NAVD88
Source Citation	✓	43616_BASE1
Bed Elevation	✓	
Top Width	✓	
XS Area	✓	
Area Unit	✓	HECTARES
Velocity	✓	
Velocity Unit	✓	CENTIMETERS / HI

An example of an Enhanced DFIRM Database field.

Required Attribute Fields

According to FEMA's database specifications, all attribute fields are defined as being either Required or Required if Applicable. The fields defined as Required must be populated. The fields defined as Required if Applicable must be populated if your data meets the stated criteria. To ease database population, the dialog contains a *Req?* column that indicates if the field is Required or Required If Applicable. If the field is Required, the column contains a checkmark. If the field is Required If Applicable, the column value is blank.



The screenshot shows a dialog box titled "POLITICAL AREA" with a close button in the top right corner. Below the title bar, it says "Please Enter Attributes:". The main area contains a table of attributes with a "Req?" column. A red box highlights the "Req?" column. The attributes and their values are as follows:

Attribute	Req?	Value
Political Area ID	✓	1471990_8
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		130192

At the bottom of the dialog, there are two radio buttons: "Standard" (selected) and "Enhanced". To the right of these are three buttons: a help icon (question mark), a lightbulb icon, and "OK" and "Cancel" buttons.

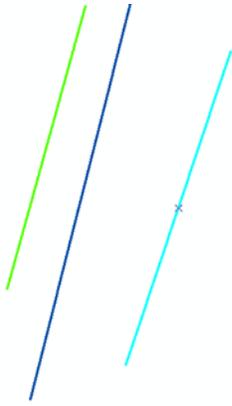
An example of the Req? column values.

Locate Feature

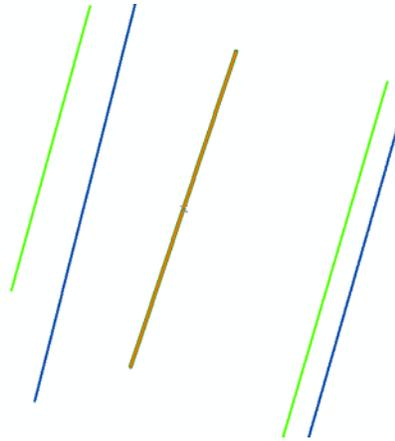
In a particularly crowded location, it may be hard to recall which feature you were attributing. The *Flash Feature* tool will help you identify the feature by temporarily highlighting it on-screen. This highlighting is not the same as selecting and unselecting the feature; the tool does not modify the current selection.

To use this tool:

1. Click the *Flash Feature* button .
2. The relative spatial feature will momentarily be highlighted on-screen.



An example of a feature of interest before it is highlighted with the Flash Feature tool.



An example of a feature of interest when it is highlighted with the Flash Feature tool.

3. Repeat as many times as necessary.

Unique ID Field Auto-Population

The **Create New Feature** tool automatically auto-populates the unique ID attribute field. The unique ID attribute field generally ends with "ID" and is the first attribute field in the list (e.g., Political Area ID, XS ID). The unique ID field value is created according to the following convention: "<JTX job ID>_<next available unique number>". For instance, the first created feature could have the value "38275_1". The next created feature would have the value "38275_2". The trend continues with the trailing value increasing by one. Since the unique ID is controlled entirely by the tool, this input box is disabled; you cannot modify the value through the dialog.

Attribute	Req?	Value
Flood Line ID	✓	1471990_623
Flood Line Type	✓	0.2 PCT ANNUAL C
Is Gutter	✓	F

Standard
 Enhanced

Buttons: ? (Help), Lightbulb (Tips), OK, Cancel

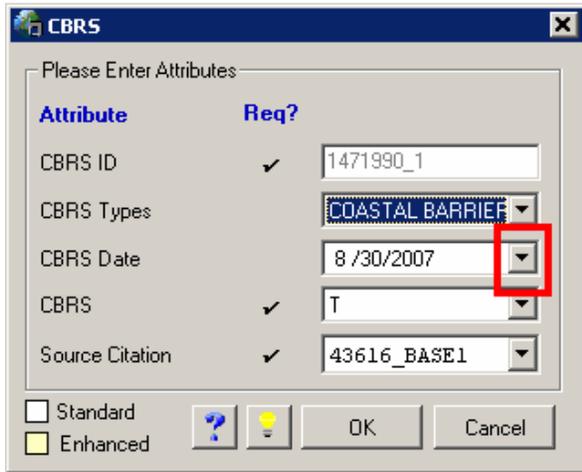
An example of an auto-populated unique ID.

Calendar

Some attribute fields throughout the DFIRM Database store a date value. To assist with this population, the **Create New Feature** dialog provides an easy-to-use calendar from which you may select the applicable date. If you prefer not to select from the calendar, for instance in the situation where you would have to scroll extensively, you may also type within the input box.

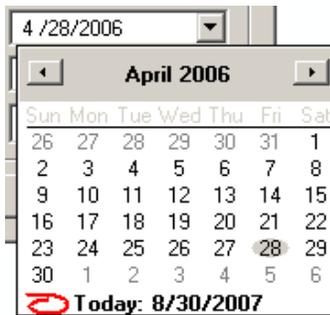
To use the built-in calendar:

1. Click the down arrow on the input box.



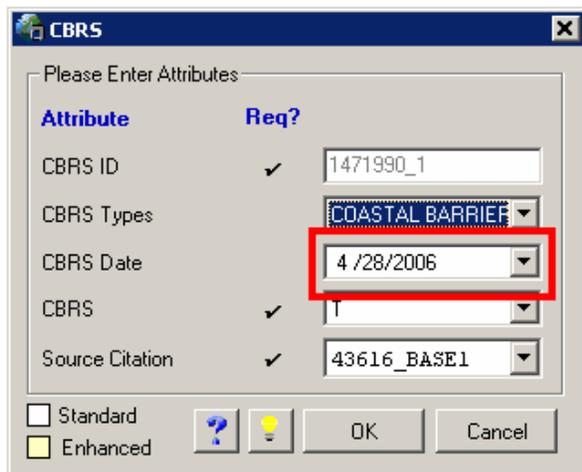
An example of the down arrow on a date field.

2. Scroll through the calendar via the arrow buttons and click on the desired date.



An example of selecting a date.

3. The selected date is entered into the input box.



An example of selected date stored in the input box.

Note: To enter the date value without selecting it from the calendar, simply click within the input box and type the desired date.

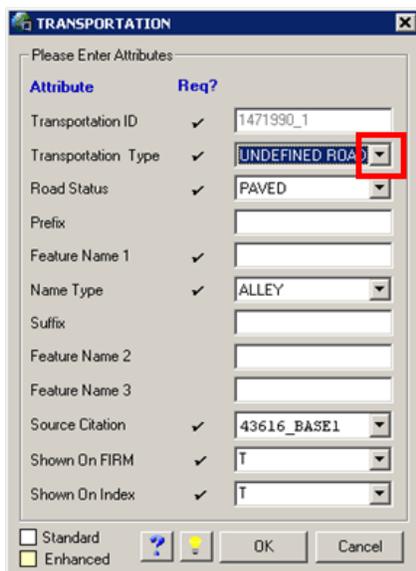
Linking to Domain Tables

Domain tables are used throughout the DFIRM Database to provide a finite set of acceptable values. This set helps ensure that only valid values are selected. The majority of the domain tables are defined in FEMA's database specifications. Additional domain tables were included in the DFIRM Tools environment to assist with database population.

Where applicable, the **Create New Feature** dialog attribute fields are linked to the domain table in the dialog. By default, when the dialog first opens, the input box is automatically populated with the first domain value in the domain table. If you are curious or unsure about which domain table is associated with the attribute field, click on the field name to open the information help dialog box; the related domain table name is stated in the description.

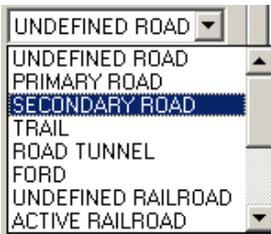
To select a value from the domain table list:

1. Click on the arrow button on the input box.



An example of the arrow button on a domain-linked attribute field.

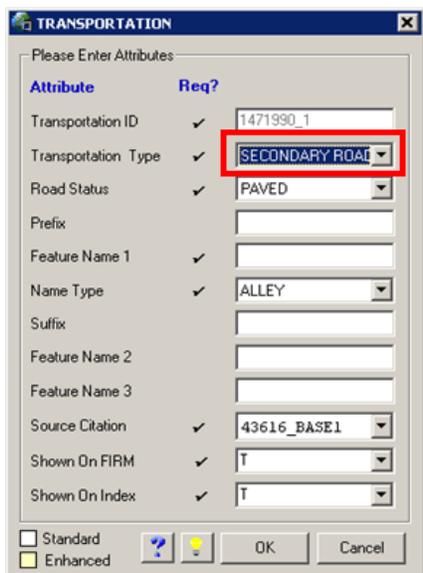
2. From the list of available values, select the desired value.



An example of the available domain values.

Note: All dropdown lists in the DFIRM Tools environment are key-activated. When you press a lettered key on the keyboard, the tool will jump to the first item in the list that starts with the pressed lettered. This shortcut accelerates the population process.

3. The input box is populated with the selected value.



An example of the selected domain value stored in the input box.

Note: As domain tables are updated, for instance when values are added to the D_Nm_Typ domain table, the changes are automatically reflected in the *Create New Feature* dialog.

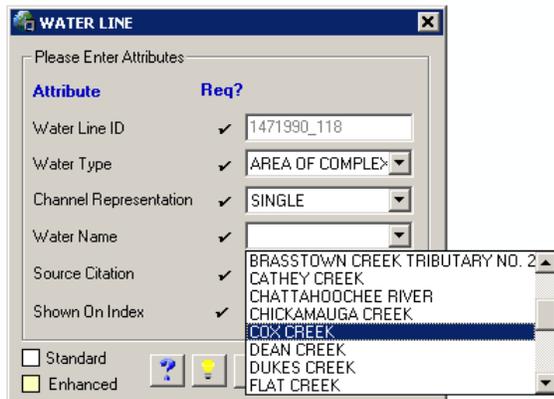
Domain-Like Look-Up Tables

In the DFIRM Tools environment, there are look-up tables that behave similarly to domain tables. In some cases these tables must be populated by you as the values are generally applicable only to your study. In many cases, the created values are used repetitively throughout a layer(s). Treating these tables like domain tables eases the attribute population by allowing you to type the value one time in the look-up table and then select the value multiple times for the spatial attribute table. In addition, using the domain-like look-up tables helps prevent misspelling and other inconsistencies from repetitive typing and user-related personal preference (e.g., "ST" or "SAINT"). Some of the tables are defined in FEMA's database specifications while other tables were added by the NSP. In the DFIRM Tools environment the following look-up tables act as domain tables and require user population:

- L_Frequency
- L_PNP_Reason
- L_Source_Cit
- L_Wtr_Nm

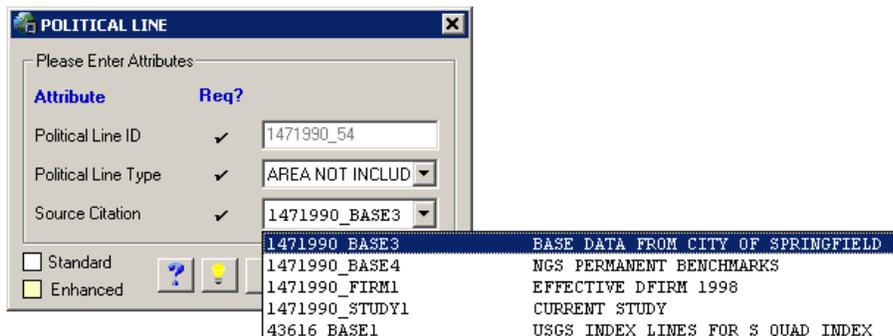
In addition to the user-populated domain-like look-up tables, there is a set of internal domain-like look-up tables which are used behind the scenes to assist with data population. You may not directly view these tables, and they do not require your population. The values in these tables are open to all studies. Examples of these types of look-up tables include a list of available projection zones, a list of formal community names, and a list of available zip codes.

Where applicable in the **Create New Feature** dialog, the domain-like look-up tables are linked to the appropriate attribute field. By default, when the dialog first opens, the input box is blank. Use the arrow button on the input box to select the value in the same way that you select a domain table value.



An example of a basic domain-like look-up input table box.

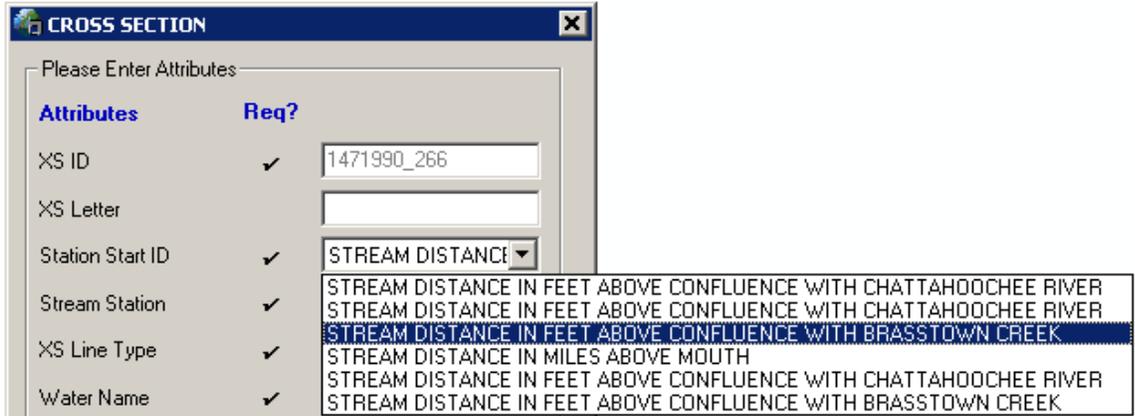
The attribute fields that link to the L_Source_Cit table are displayed slightly differently in the dialog than the other domain-like look-up tables. The L_Source_Cit table stores both a unique ID (e.g., 92775_BASE1) and a descriptive value (e.g., Base map features from City of Springfield). Since user preference may define which of these values is easier to identify in a list, both values are included in the input box list to accommodate all users.



An example of the L_Source_Cit-related domain-like look-up input box.

The *Cross Section* (S_XS) layer links to the L_Stn_Start table via the *STATION START ID* (START_ID) attribute field. Although L_Stn_Start is a true look-up table rather than a domain-like

look-up table, the Station Start ID attribute field input box list for the *Cross Section (S_XS)* layer contains the text stored in the STATION START DESCRIPTION (START_DESC) rather than the STATION START ID (START_ID) value. The STATION START DESCRIPTION (START_DESC) text is easier to recognize which eases the population process.



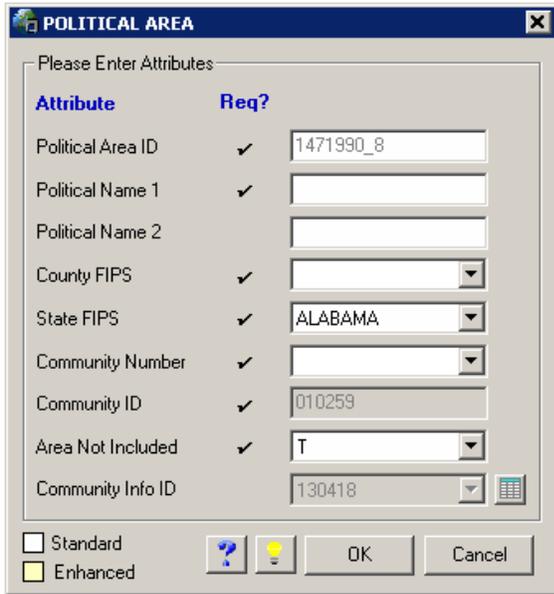
An example of the Station Start ID input box.

Political Area Dialog Filter

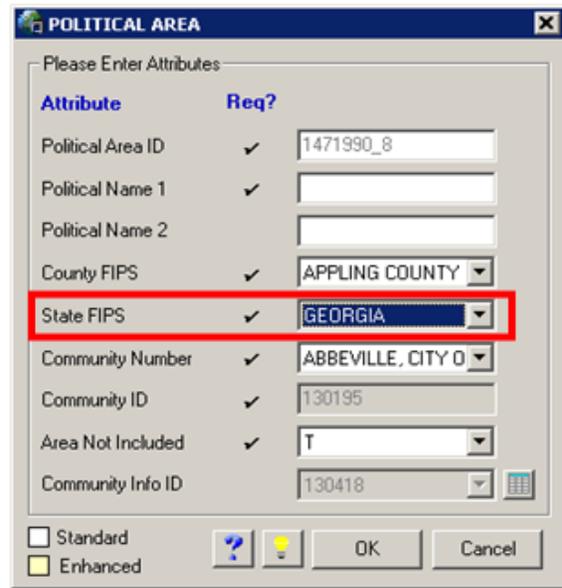
For the *Political Area (S_Pol_Ar)* layer, the related **Create New Feature** dialog contains value filtering to ease the population of the attribute fields. When the dialog first opens, the County FIPS, State FIPS, and Community Number attribute input box values are defaulted to Alabama-related values. Once a state is selected in the State FIPS input box, the County FIPS and Community Number input boxes are automatically updated to reflect the applicable values for the selected state. The Community ID input box value is automatically auto-populated based on the State FIPS and Community Number input box values. Since the Community ID value is auto-calculated and, therefore, does not require user interaction, the input box has been disabled; you may not edit the value through the dialog.

To select the political area values:

1. Select a value from the State FIPS list.



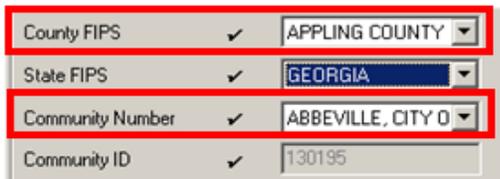
An example of the Political Area Create New Feature dialog when the dialog is first opened.



An example of a selected state.

Note: The list displays state names (e.g., GEORGIA) instead of true state FIPS codes (e.g., 13) for easy recognition.

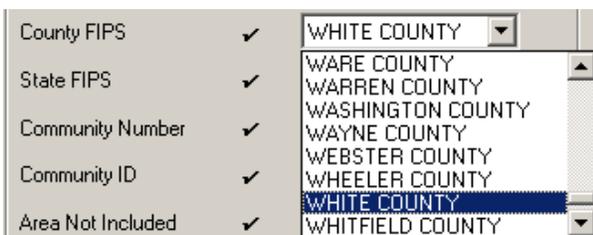
- The County FIPS and Community Number list values are automatically updated to show only those values that apply to the selected state.



An example of automatically filtered County FIPS and Community Number input boxes.

Note: For studies which are based in Alabama, re-select "ALABAMA" in the State FIPS input box and the County FIPS and Community Number input boxes will automatically update with the Alabama-related values.

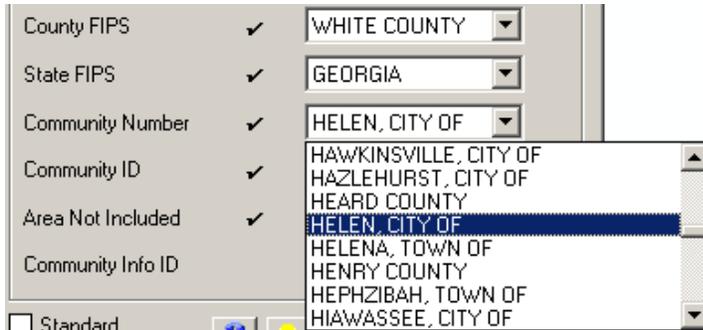
- Select the appropriate County FIPS value from the list.



An example of selecting a County FIPS value.

Note: The list displays county names (e.g., WHITE COUNTY) instead of true county FIPS codes (e.g., 311) for easy recognition.

4. Select the appropriate Community Number value from the list.



An example of selecting a Community Number value.

Note: The list displays community names (e.g., HELEN, CITY OF) instead of true community CID codes (e.g., 0192) for easy recognition.

5. The Community ID value is automatically calculated based on the State FIPS and Community Number values.



An example of the auto-calculated Community ID.

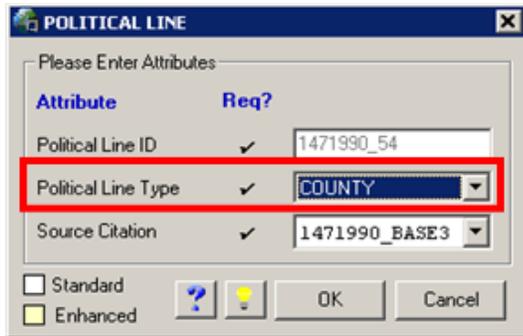
Feature Type Auto-Populated

For those layers which have an associated feature type, the **Create New Feature** dialog auto-populates the related attribute field input box with the value selected in the **Feature Type** list. For instance, for the *General Structure* (S_Gen_Struct) layer, the selected feature type is "CHANNEL". When the **Create New Feature** dialog for General Structure opens, the Structure Type input box value is automatically set to "CHANNEL". The following table lists the layers which contain feature types and the corresponding attribute field input box from the **Create New Feature** dialog:

Layer with Feature Types	Associated Attribute Field
<i>Flood Hazard Line</i> (S_Fld_Haz_Ln)	Flood Line Type
<i>General Structure</i> (S_Gen_Struct)	Structure Type
<i>PLSS Line</i> (S_PLSS_Ln)	PLSS Line Type
<i>Political Line</i> (S_Pol_Ln)	Political Line Type
<i>Transportation</i> (S_Trnsport_Ln)	Transportation Type
<i>Water Line</i> (S_Wtr_Ln)	Water Type



An example of a selected feature type.



An example of the associated attribute field input box auto-populated with the selected feature type.

Note: If the *Feature Type* value is not pre-set, the attribute field input box defaults to the first value in the list.

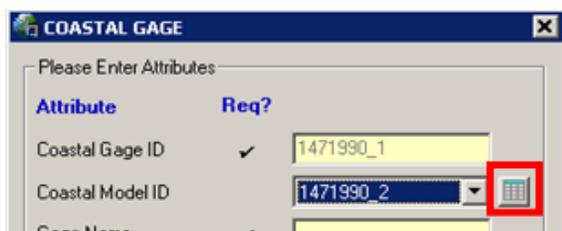
Linking to Look-up Tables

Throughout the DFIRM Database, attribute fields are linked to other spatial layers or tables via common attributes. For instance, the spatial layer *Political Area* (S_Pol_Ar) is linked to the table L_Comm_Info through the attribute field *COMMUNITY INFO ID* (COM_NFO_ID). To ease the population of the linked fields, the appropriate attribute field input box in the **Create New Feature** dialog is linked to the records in the related look-up table/layer. This link allows you to select the suitable value from the input box list. When the **Create New Feature** dialog is opened, the appropriate attribute field input box is defaulted to the first value in the list.

Since the values in the input box list may not contain enough information to easily select the appropriate value, a button was added next to the appropriate input box in the **Create New Feature** dialog. The button is named according to the table it links to and follows the "View <table name> Table" naming format. For instance, the button in *Political Area* (S_Pol_Ar)'s **Create New Feature** dialog for the Community Info ID input box is named "View L_Comm_Info Table".

To select a value using the view table button:

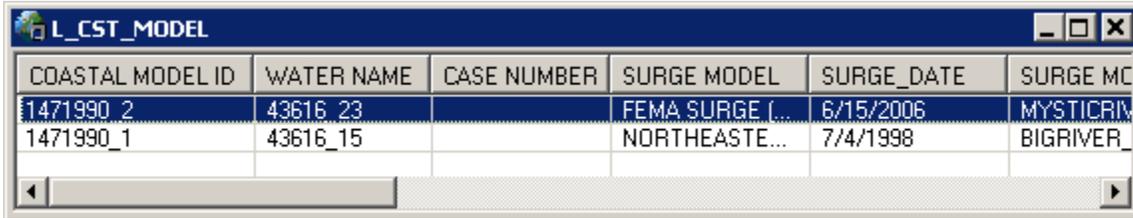
1. Click the *View <table name> Table* button .



An example of the View L_Cst_Model Table button.

Note: If the corresponding table does not contain any records, the button will be disabled.

2. A dialog containing a list of the records from the associated table opens. The dialog which lists the records is named according to the associated table. All records in the associated table are listed.



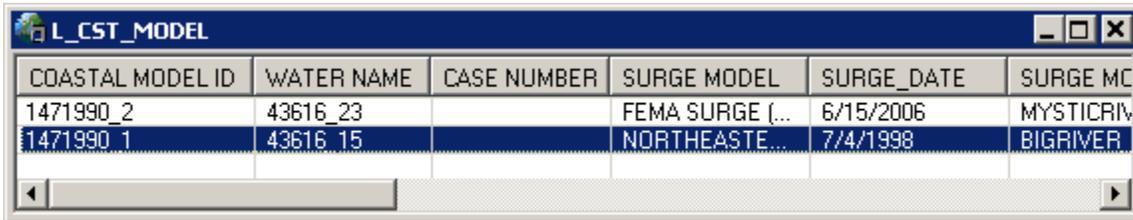
COASTAL MODEL ID	WATER NAME	CASE NUMBER	SURGE MODEL	SURGE_DATE	SURGE MC
1471990_2	43616_23		FEMA SURGE (...)	6/15/2006	MYSTICRIV
1471990_1	43616_15		NORTHEASTE...	7/4/1998	BIGRIVER_

An example of the dialog containing the records in the associated L_Cst_Model table.

Note: The table is read-only; the values in the records cannot be edited.

Note: When the dialog opens, the first record in the table is automatically selected.

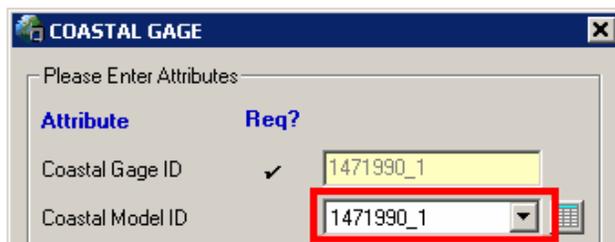
3. Click on the suitable record in the dialog.



COASTAL MODEL ID	WATER NAME	CASE NUMBER	SURGE MODEL	SURGE_DATE	SURGE MC
1471990_2	43616_23		FEMA SURGE (...)	6/15/2006	MYSTICRIV
1471990_1	43616_15		NORTHEASTE...	7/4/1998	BIGRIVER_

An example of a selected record in the associated L_Cst_Model table dialog.

4. When satisfied with the selection, click the **X** button in the upper right-hand corner of the record list to close the dialog.
5. The input box in the **Create New Feature** dialog is updated with the selected value.



Please Enter Attributes

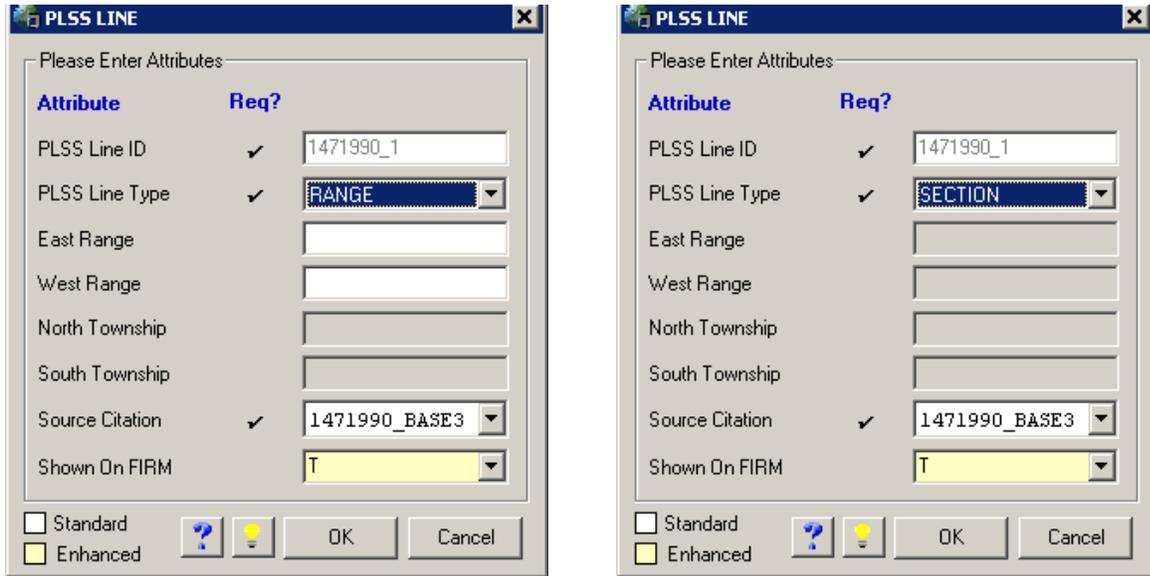
Attribute	Req?	
Coastal Gage ID	✓	1471990_1
Coastal Model ID		1471990_1

An example of the input box updated with the selected value.

Rule-Based Input Box Availability

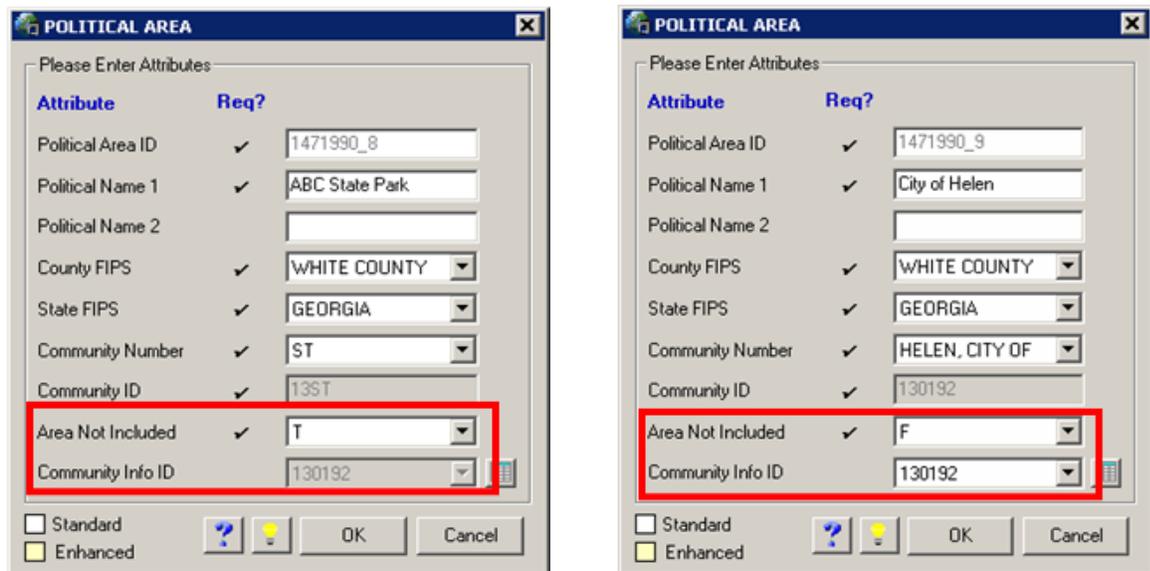
In some cases in the DFIRM Database, the population of an attribute field depends on the value entered for another attribute field. The **Create New Feature** dialog uses the rules in FEMA's database specifications to assist with the population of particular features. In the dialog as the rule is met, the related input boxes are automatically disabled/enabled. When the controlling attribute

field value is changed in the dialog, the related input boxes are dynamically updated. For instance, in the **Create New Feature** dialog for the *PLSS Line* (S_PLSS_Ln) layer, the value selected in the PLSS Line Type attribute field input box controls the availability of the other attribute field input boxes. As the PLSS Line Type input box value is changed, the East Range, West Range, North Township, and South Township input boxes become enabled and disabled according to the rules defined in FEMA's database specifications.



Examples of input boxes becoming enabled and disabled based on selected values.

Another example of an implementation of a population rule is in the **Create New Feature** dialog for the *Political Area* (S_Pol_Ar) layer. In this dialog, if the Area Not Included input box value is equal to "T", the Community Info ID input box does not become enabled.



Examples of the Area Not Included input box value influencing if the Community Info ID input box is enabled.

Create New Feature OK Button Specifications

Free Text and Calendar Values

For the **Create New Feature** dialog input boxes which are free text (e.g., are not connected to a dropdown list) or are associated with a calendar, the value in the input box is what is saved as the attribute field value for the newly created feature when the **OK** button is clicked.

The screenshot shows the 'POLITICAL AREA' dialog box with the following attributes:

Attribute	Req?	Value
Political Area ID	✓	1471990_8
Political Name 1	✓	City of Helen

An example of a populated free text input box in a Create New Feature dialog.

POLITICAL AREA ID	POLITICAL NAME 1	POLITICAL NAME 2	COUNTY
1471990_8	CITY OF HELEN	Null	311

An example of the populated free text value saved in the attribute table for the newly created feature.

The screenshot shows the 'CBRS' dialog box with the following attributes:

Attribute	Req?	Value
CBRS ID	✓	1471990_1
CBRS Types		COASTAL BARRIER
CBRS Date		10/18/1991

An example of a populated calendar input box in a Create New Feature dialog.

FC_SUBTYPE	CBRS ID	CBRS TYPE	CBRS_DATE	CI
0	1471990_1	COASTAL BARRIER	10/18/1991	

An example of the populated calendar value saved in the attribute table for the newly created feature.

Domain Table Values

Values for attribute fields which are associated with a domain table are always displayed as the domain description even though the domain code is actually stored. This is an inherent property of a geodatabase in ArcMap. For instance, if you open the attribute table for the *Transportation* (S_Trnsport_Ln) layer, the *NAME TYPE* (NM_TYP) field value for a particular record is "STREET". Behind the scenes, the field is actually storing the value "1039" which is the domain code for the domain description "STREET". When the **Create New Feature** dialog links to a domain table, the dialog is displaying the domain description (e.g., STREET). When the **OK** button is clicked on the **Create New Feature** dialog, the domain code is stored in the geodatabase even though it will always be displayed as the domain description.

The screenshot shows the 'BFE' dialog box with the following attributes:

Attribute	Req?	Value
BFE Line ID	✓	1471990_247
Elevation	✓	15423
Length Units	✓	FEET
Vertical Datum	✓	NAVD88

BFE ID	ELEVATION	LENGTH UNIT	VERTICAL DATUM	SOURC
1471990_247	15423	FEET	NAVD88	1471990_

An example of a populated domain table input box in a Create New Feature dialog.

An example of the populated domain table value saved in the attribute table for the newly created feature.

Domain-Like Look-Up Table Values

For the attribute field input boxes which link to domain-like look-up tables, the table's unique ID (e.g., 375322_15) is stored as the value in the attribute table even though a description (e.g., BIG RIVER) is shown in the **Create New Feature** input box. The unique ID is stored so that if a change to the description value is needed, the change can be made in one place (i.e., in the domain-like look-up table) rather than in all of the records which store the look-up table description value.

The screenshot shows a dialog box titled "WATER LINE" with a "Please Enter Attributes" section. It contains a table of attributes with checkboxes for required fields. The "Water Name" row is highlighted with a red box, showing a dropdown menu with "BLUE CREEK" selected.

Attribute	Req?	Value
Water Line ID	✓	1471990_118
Water Type	✓	LAKE / POND
Channel Representation	✓	SINGLE
Water Name	✓	BLUE CREEK
Source Elevation	✓	1471990_BASE

An example of a populated domain-like look-up table input box in a Create New Feature dialog.

The screenshot shows a table titled "Selected Attributes of WATER LINE". The "WATER NAME" column is highlighted with a red box, showing the value "43616_4".

WATER LINE ID	WATER TYPE	CHANNEL REPR	WATER NAME	SOURCE ELEVATION
1471990_118	LAKE / POND	SINGLE	43616_4	1471990_BASE

An example of the populated domain-like look-up table value saved in the attribute table for the newly created feature.

Political Area Values

In the **Create New Feature** dialog for the *Political Area* (S_Pol_Ar) layer, the political name description is shown for ease of population, but the political FIPS or CID value is stored in the attribute field (as the FEMA database specifications require). For the County FIPS attribute field input box, the county name is shown, but the county FIPS code value is stored in the attribute table. For the State FIPS attribute field input box, the state name is shown, but the state FIPS code value is stored in the attribute table. For the Community Number attribute field input box, the community name is shown, but the community CID value is stored in the attribute table.

The screenshot shows a dialog box titled "POLITICAL AREA" with a "Please Enter Attributes" section. It contains a table of attributes with checkboxes for required fields. The "County FIPS", "State FIPS", and "Community Number" rows are highlighted with a red box.

Attribute	Req?	Value
Political Area ID	✓	1471990_8
Political Name 1	✓	City of Helen
Political Name 2		
County FIPS	✓	WHITE COUNTY
State FIPS	✓	GEORGIA
Community Number	✓	HELEN, CITY OF

An example of a populated political area input boxes in a Create New Feature dialog.

The screenshot shows a table titled "Selected Attributes of POLITICAL AREA". The "COUNTY FIPS", "STATE FIPS", and "COMMUNITY NUMBER" columns are highlighted with a red box, showing values "311", "13", and "0192" respectively.

POLITICAL AREA ID	POLITICAL NAME 1	POLITICAL NAME 2	COUNTY FIPS	STATE FIPS	COMMUNITY NUMBER
1471990_8	CITY OF	<Null>	311	13	0192

An example of the populated political area values saved in the attribute table for the newly created feature.

Look-Up Table Values

For look-up tables, the unique ID value is shown in the *Create New Feature* dialog's attribute field input box and is stored in the attribute table.

COASTAL TRANSECT

Please Enter Attributes

Attribute	Req?	Value
Transect ID	✓	1471990_1
Transect Number	✓	54
Source Citation	✓	1471990_STUDY1
Coastal Model ID		1473185_1
Wave Setup Depth		

An example of a populated free text input box in a Create New Feature dialog.

TRANSECT ID	TRANSECT NUMBER	SOURCE CITATION	COASTAL MODEL ID	WAV
1471990_1	54	1471990_STUDY1	1473185_1	{Null}

Record: 1 Show: All Selected Records: (1 out of 1 Selected.)

An example of the populated free text value saved in the attribute table for the newly created feature.

The exception to this rule is the L_Stn_Start table which is linked to the *Cross Section* (S_XS) layer in the *Create New Feature* dialog. In the dialog for this layer, the description is shown for the Station Start ID input box but the unique ID is stored in the attribute table.

CROSS SECTION

Please Enter Attributes

Attributes	Req?	Value
XS ID	✓	1471990_266
XS Letter		B
Station Start ID	✓	STREAM DISTANCE

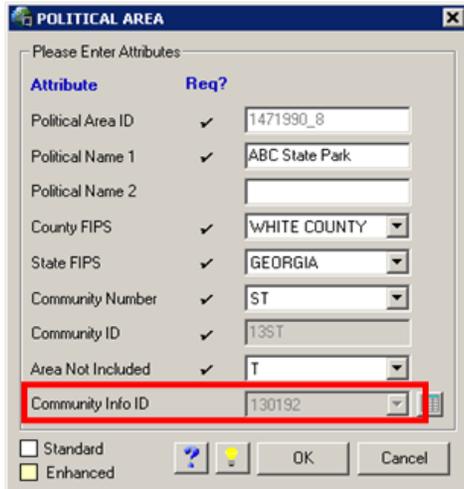
An example of a populated Station Start ID input box in a Create New Feature dialog.

XS ID*	XS LETTER	STATION START ID	TR
1471990_266	B	43616_4	43

Record: 1 Show: All Selected Re

An example of the populated Station Start ID value saved in the attribute table for the newly created feature.

The Community Info ID input box in the *Political Area* (S_Pol_Ar) layer's *Create New Feature* dialog is dependent upon the Area Not Included input box value. If the Area Not Included input box value equals "T", the Community Info ID input box is disabled. Even though you may alter the Community Info ID input box value via the *View L_Comm_Info Table* button, when the *OK* button is clicked, the value "<Null>" is saved in the attribute table.



An example of a Community Info ID input box for a not included area in a Create New Feature dialog.



An example of the <Null> Community Info ID value for the not included area saved in the attribute table for the newly created feature.



Trace

The **Trace** tool creates spatial features by tracing over existing selected features. Once the spatial feature is created, the related dialog prompts you to populate the feature's attribute fields. You must be in an editing session to access this tool.

Note: The **Trace** tool is a NSP-modified version of ESRI's *Trace Tool* available on the **Editor** toolbar. The two tools have the same feature creation functionality with the exception that the **Trace** tool triggers an attribute population dialog while the *Trace Tool* does not.

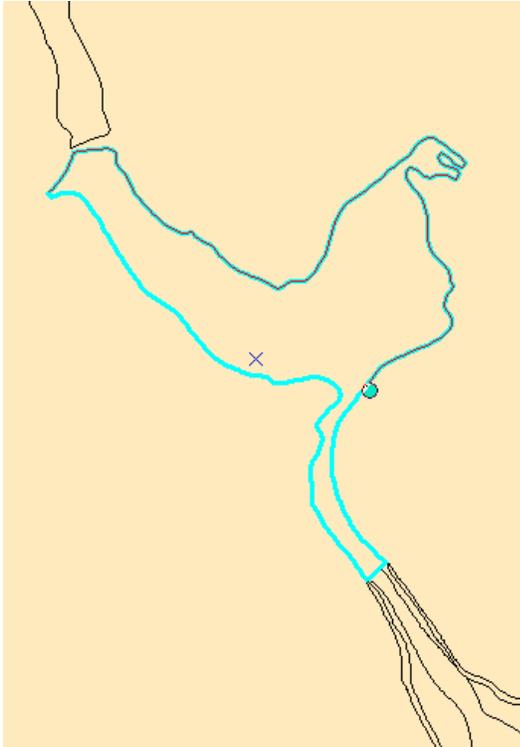
1. Select the features you want to trace using the *Edit* tool or the *Select Features* tool.

Note: The source layer must be a selectable layer. If the features are not selectable, set the layer as selectable with the *Set Selectable Layers* tool under the *Selection* menu.

2. Click on the appropriate layer in the *Target Layer* dropdown list to set the target layer.
3. Click the **Trace** tool.

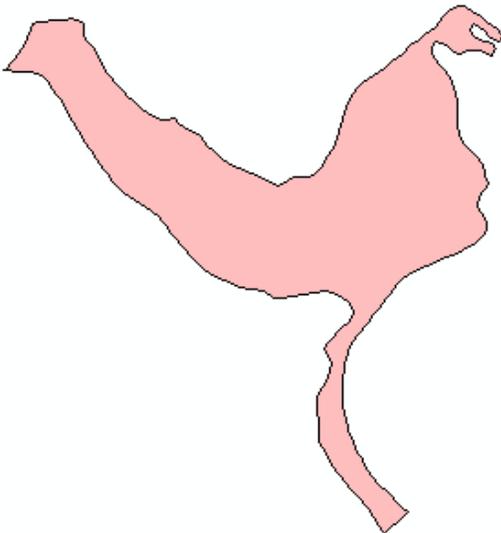
Note: You should be in Data View when creating or editing data.

4. Click on the map to start tracing.
5. Move the cursor over the features you want to trace.



An example of tracing a selected feature.

6. Double-click to end the tracing and to create the feature.



An example of a feature created with the Trace tool.

Note: When you single-click, you commit the vertices that were created with the trace up to that point. Single-clicking does not end the feature sketch.

- Once the new spatial feature has been created, the feature's related attribute population dialog will appear.

The screenshot shows a dialog box titled "FLOOD HAZARD AREA" with a close button in the top right corner. Below the title bar, it says "Please Enter Attributes". The dialog contains a table of attributes with their respective values and a "Req?" column indicating if they are required. At the bottom, there are checkboxes for "Standard" and "Enhanced", and buttons for "OK" and "Cancel".

Attribute	Req?	Value
Flood Area ID	✓	14409_512
Flood Zone	✓	A
Floodway		NSPNULL
SFHA TF	✓	T
Static BFE		
Vertical Datum		MSL
Depth		
Length Unit		FEET
Velocity		
Velocity Unit		CENTIMETERS / HI
AR Revert Zone		NSPNULL
AR Revert BFE		-9999
AR Revert Depth		-9999
Source Citation	✓	1442644_BASE1
Hydrologic Model ID		
Coastal Model ID		
Levee Status		ACCREDITED
PAL Date		10/ 5 /2007

An example of a Trace attribute population dialog.

The dialog which is opened is the same dialog that is prompted with the *Create New Feature* tool. For detailed information about the functionality and options available in the dialog, refer to the *Create New Feature Dialog Specification* and *Create New Feature OK Button Specifications* sections of this document.

- Populate the attribute field input boxes as appropriate.

FLOOD HAZARD AREA

Please Enter Attributes

Attribute	Req?	Value
Flood Area ID	✓	14409_512
Flood Zone	✓	A
Floodway		NSPNULL
SFHA TF	✓	T
Static BFE		-9999
Vertical Datum		NSPNULL
Depth		-9999
Length Unit		NSPNULL
Velocity		-9999
Velocity Unit		NSPNULL
AR Revert Zone		NSPNULL
AR Revert BFE		-9999
AR Revert Depth		-9999
Source Citation	✓	1442644_STUDY1
Hydrologic Model ID		
Coastal Model ID		
Levee Status		NSPNULL
PAL Date		9 / 9 /9999

Standard
 Enhanced

An example of a fully populated Trace dialog.

9. Click *OK*.

10. The values in the input boxes are committed to the attribute table for the newly created feature.

Selected Attributes of FLOOD HAZARD AREA

FLOOD AREA ID	FLOOD ZONE	FLOODWAY	SFHA TF	STATIC BFE	VERTICAL DATUM	DEPTH	LENGTH UNIT	VELOCITY
14409_512	A	NSPNULL	T	-9999	NSPNULL	-9999	NSPNULL	-9999

Record: 1 Show: All Selected Records (1 out of 497 Selected) Options

An example of a populated attribute table for the newly created feature.

Note: Your edits will be saved automatically; you will not be prompted to “Save Edits” when you stop editing.

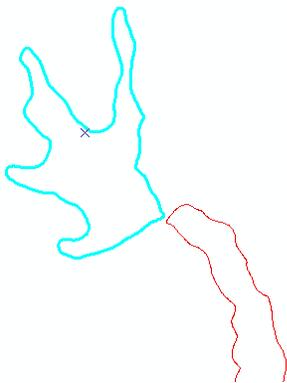


Construct Features

The Construct Features tool creates spatial 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 select lines or polygons to create lines in a line-based target layer. You can also select lines or polygons to create polygons in a polygon-based target layer. You must be in an editing session to access this tool.

Note: The **Construct Features** tool is a NSP-modified version of ESRI's *Construct Features* tool available on the **Topology** toolbar. The two tools have the same feature creation functionality with the exception that the NSP **Construct Features** tool populates the DFIRM_ID attribute field while the ESRI *Construct Features* tool does not. Since it is essential that the DFIRM_ID attribute field be populated, the ESRI *Construct Features* tool has been disabled in the DFIRM Tools environment. When you want to construct features, you must use the **Construct Features** tool on the **DFIRM GeoPop Pro** toolbar.

1. Select the features with the geometry from which you would like to construct features using the *Edit* tool or the *Select Features* tool.

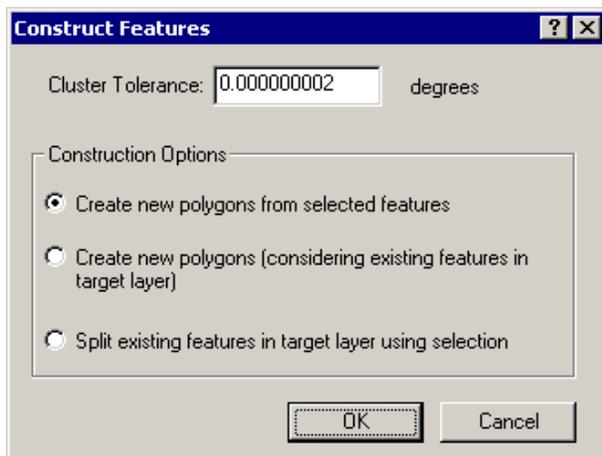


An example of selected line features.

Note: The source layer must be a selectable layer. If the features are not selectable, set the layer as selectable with the *Set Selectable Layers* tool under the *Selection* menu.

Note: If you are creating features from lines, you should planarize the line features with the *Planarize* tool on the **Topology** toolbar before constructing new features.

2. Click on the appropriate layer in the *Target Layer* dropdown list to set the target layer.
3. Click the **Construct Features** button.
4. The *Construct Features* window will appear.



Example of the Construct Features window.

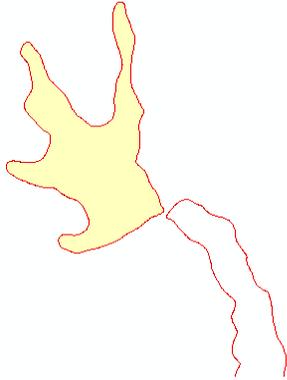
The cluster tolerance is the minimum distance between vertices of features that are not coincident. Vertices that fall within the cluster tolerance are defined as coincident and are snapped together (ESRI ArcGIS Help). The default cluster tolerance is based upon the spatial extents and precision of the DFIRM Tools' ArcSDE geodatabase. The default cluster tolerance is the most precise that is available. You may modify this tolerance to be less precise, if desired, but it is not recommended.

5. Select the *Create new polygons from selected features* option.

The DFIRM Tools environment contains nationwide layers. Although you are working on a small area, the data related to other counties/communities is in your JTX job. For ease of use, definition queries are placed on the layer to restrict the viewable data to that which is associated with your study (i.e., associated with your DFIRM_ID). This definition query may be removed and re-applied with the *Show DFIRM Adjacent Area* tool on the **DFIRM Layer Loader** toolbar. When you construct features with the *Create new polygons (considering existing features in target layer)* option, the tool considers all existing features, even those which are not associated with your study area (e.g., not associated with your DFIRM_ID). If there are overlapping features (which becomes increasingly more common as the layer begins to be filled with FEMA's effective data), you may create sliver polygons or alter FEMA's effective data (which is available for reference only). In addition, data that should be associated with your study may become associated with another study and vice versa. Past experiences have shown that the NSP **Construct Features**/ESRI *Construct Features* tool is unpredictable and largely undocumented. To reduce the risk, the NSP strongly recommends that you **ONLY** select the *Create new polygons from selected features* option.

The *Split existing features in target layer using selection* option alters an existing feature(s) by dividing it at the location of a selected feature(s). Take great care in using this option as you may alter neighboring study data if your selected feature overlaps/intersects adjacent study data. Before using this option, view the neighboring data with the *Show DFIRM Adjacent Area* tool to verify that your operation will not impact the adjacent data.

6. Click *OK*.
7. The new feature(s) is created in the target layer.



An example of a polygon constructed from selected line features.

Note: Once the feature(s) is created, you should populate the feature's attribute fields with the *Attribute Selected Features* or *Attribute All Selected Features* tool.



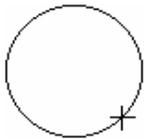
Snap Tolerance

The **Snap Tolerance** tool sets the tolerance value applied to all snap agents. You must be in an editing session to access this tool.

Note: The **Snap Tolerance** tool is a standard ESRI tool; this tool was not modified by the NSP. In a customizable environment this same tool may be added to the **Editor** toolbar.

Note: The tolerance value and units may also be set via the *General* tab in the *Options* tool.

1. Click on the **Snap Tolerance**  tool.
2. Click on the map.
3. Drag an expanding circle on the map to set the tolerance value.



Example of the expanding tolerance circle.



Attributes

The **Attributes** tool allows attributes of selected features to be viewed and modified. This tool is useful for quickly editing attribute field values. To have more control over attribute editing and to take advantage of intuitive options for attribute fields, it is recommended that you use either the *Attribute Selected Features* or the *Attribute All Selected Features* tool. You must be in an editing session to access this tool.

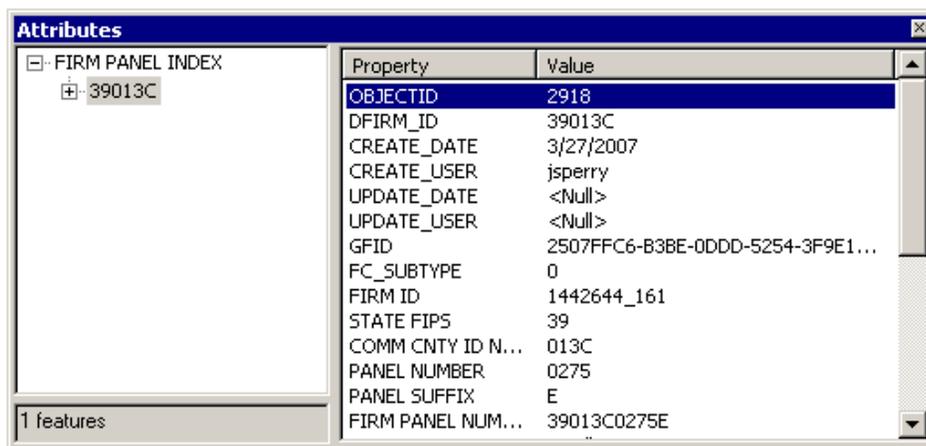
Note: The **Attributes** tool is a standard ESRI tool; this tool was not modified by the NSP. This same tool may be accessed from the **Editor** toolbar.

1. Select the features whose attributes you want to view/edit using the *Edit* tool or the *Select Features* tool.

Note: The source layer must be a selectable layer. If the features are not selectable, set the layer as selectable with the *Set Selectable Layers* tool under the *Selection* menu.

Note: The selected target layer does not impact the selection set or the ability to view/edit the attribute values.

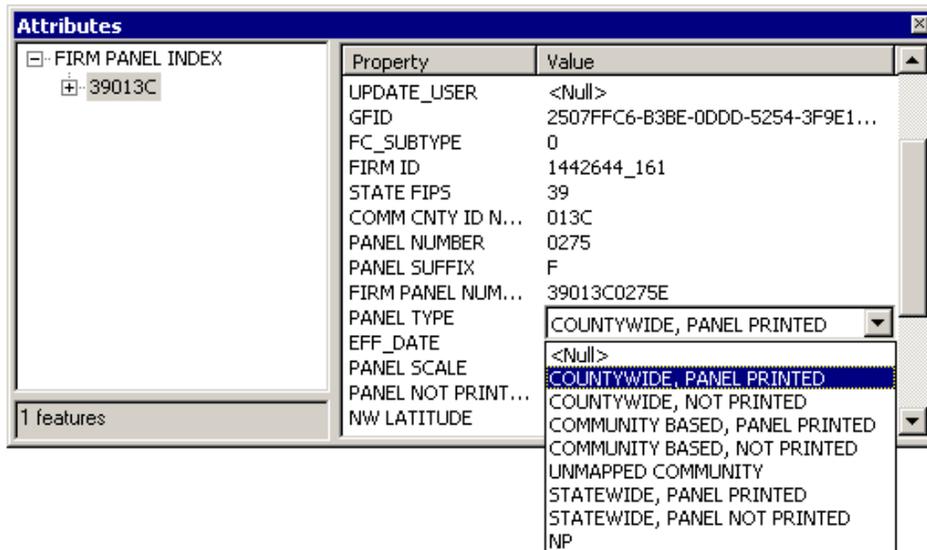
2. Click the **Attributes** tool.
3. The *Attributes* window will appear.



An example of the Attributes window.

Note: If you have multiple features selected (from a single layer or multiple layers), all features will be listed in the left-hand side of the *Attributes* window.

4. Edit the existing value(s). Dropdown menu items will be shown for those attributes fields associated with domain tables.



An example of edits in the *Attributes* window.

Note: If you click on the feature's item in the left-hand side of the window, the associated spatial feature will flash on-screen. This option is useful when multiple features are selected.

- When the edits are complete, close the *Attributes* window by clicking on the *X* button in the upper right-hand corner.

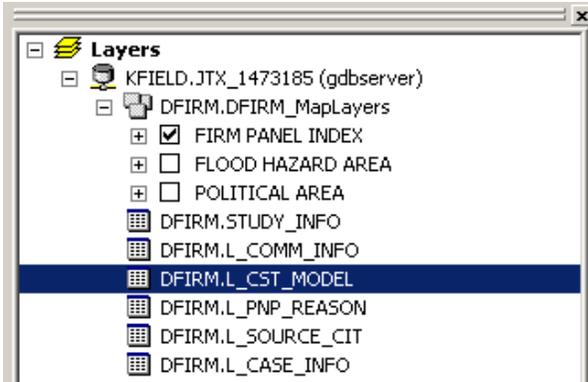
Note: The edits will not be saved to the layer until you select to do so via the *Save Edits* tool on the **Editor** toolbar.



Add New Row

The **Add New Row** tool creates a new record for the selected table and prompts the user to populate the attribute fields via a user-friendly dialog. This tool is applicable for tables whose name begins with "L_" and the Study_Info table. You must be in an editing session to access this tool.

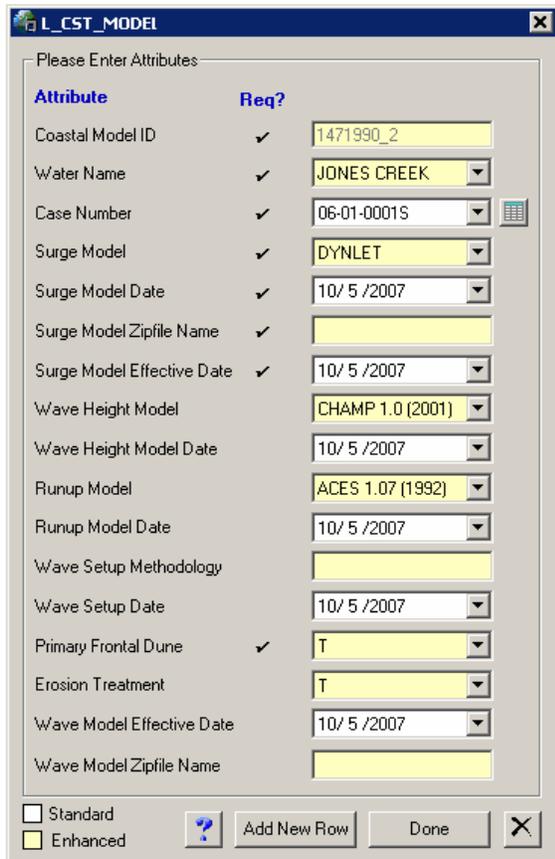
- Click the **Source** tab on the bottom of the Table of Contents to display the tables.
- Select a table in the Table of Contents.



An example of a selected table in the Table of Content's Source tab.

Note: If your desired table is not currently loaded into the ArcMap session, use the *DFIRM SDE Data Loader* tool on the **DFIRM Layer Loader** toolbar to add the table to the Table of Contents.

3. Click **Add New Row**.
4. The attribute population dialog related to the selected table will appear.



An example of an Add New Row attribute population dialog.

The dialog is designed to ease the attribute population process by providing helpful information, auto-populating the attribute field input box where applicable, and linking to related domain and look-up tables. The dialog is very similar to the **Create New Feature** dialog in that it contains many of the same characteristics. Refer to the *Create New Feature Dialog Specification* and *Create New Feature OK Button Specifications* sections of this document for additional information about the options and functionality within the **Add New Row** dialog.

5. Populate the attribute field input boxes as appropriate.

Attribute	Req?	Value
Coastal Model ID	✓	1471990_2
Water Name	✓	WEBSTER LAKE
Case Number	✓	06-01-0001S
Surge Model	✓	MIKE 21 HD/NHD
Surge Model Date	✓	8 / 2 /2006
Surge Model Zipfile Name	✓	surgemodel.zip
Surge Model Effective Date	✓	12/14/2006
Wave Height Model		MIKE 21 (NSW)
Wave Height Model Date		1 / 4 /2007
Runup Model		NSPNULL
Runup Model Date		9 / 9 /9999
Wave Setup Methodology		
Wave Setup Date		9 / 9 /9999
Primary Frontal Dune	✓	F
Erosion Treatment		T
Wave Model Effective Date		9 / 9 /9999
Wave Model Zipfile Name		

An example of a populated Add New Row attribute population dialog.

6. If you wish to save the current record and create an additional record(s), click **Add New Row**  in the dialog.

When the **Add New Row** button is clicked, the dialog will be refreshed. The unique ID input box value (e.g., Coastal Model ID) will increment as appropriate. Values previously selected from domain tables and domain-like look-up tables will remain selected in the refreshed dialog. All free text input boxes will be cleared of text. Input boxes linked to look-up tables will be defaulted to the first value in the list. Input boxes which store a date value will refresh to today's date.

You may continue to click **Add New Row** until you have created all of the needed records.

7. If you wish to save the current record and exit the row creation process, click **Done**  in the dialog.

Note: If you used the *Add New Row* button to create multiple rows and use the *Done* button to exit the dialog, please keep in mind that the attribute field values in the current dialog will be added as a new record. If you intended for the current data in the dialog not to be added as a record, click the *Cancel* button instead of the *Done* button.

8. The values in the input boxes are committed as a new record in the selected look-up table.

COASTAL	WATER N	CASE NUM	SURGE MODEL	SURGE_	SURGE MODEL Z	SURGE_EF	WAVE HEIGH	WAVE
1471990_2	43616_22	06-01-0001S	MIKE 21 HD/NHD	8/2/2006	SURGEMODEL.ZIP	12/14/2006	MIKE 21 (NSW)	1/4/20

An example of a newly created record for the selected look-up table.

OR

8. If you wish to cancel the creation of the current record and exit the row creation process, click *Cancel*  in the dialog.

Note: If you used the **Add New Row** button to create multiple rows and click the *Cancel* button to exit the dialog, please note that only the current record in the dialog is removed from the table; all previously created records are not affected.

The **Add New Row** dialog for the Study_Info table behaves slightly different than the rest of the L_* tables. Since the Study_Info table contains only one record, the **Add New Row** button on the **DFIRM GeoPop Pro** toolbar only allows you to add and edit one record. If the Study_Info table contains no records when the **Add New Row** button is clicked, the Study_Info-related **Add New Row** dialog contains the default values and empty input boxes. If a record already exists in Study_Info, the dialog will contain the values from the existing record.

STUDY_INFO Record

Please Enter Attributes

Attribute	Req?	Attribute	Req?
Study Info ID	✓	Projection Zone	NAD27 STATE PLAI
Study Prefix	BOROUGH OF	Countywide	✓ T
Study Name	✓	CBRS Phone	✓
State Name	✓ ALABAMA	CBRS Region	✓
County Name	✓ AUTAUGA COUNTY	Retrofit	T
Jurisdiction Type	UNINCORPORATE	Metadata Filename	
Largest Panel Number	✓	Study Zipfile Name	✓
Only Printed Panel	✓ T	State Plane Unit	FEET
Horizontal Datum	✓ NAD27	Distribute Transportation	✓ T
Vertical Datum	✓ NAVD88	DOQ Based	✓ T
Projection	✓ STATE PLANE	Show Secondary Grid	T
		Secondary Grid	NAD27 UTM Zone 1

Standard
 Enhanced

An example of Study_Info's Add New Row dialog's default values when no record exists.

STUDY_INFO Record

Please Enter Attributes

Attribute	Req?	Attribute	Req?
Study Info ID	✓	Projection Zone	NAD83 UTM Zone 1
Study Prefix	NSPNULL	Countywide	✓ T
Study Name	✓	CBRS Phone	✓
State Name	✓ GEORGIA	CBRS Region	✓
County Name	✓	Retrofit	F
Jurisdiction Type	AND INCORPORAT	Metadata Filename	13311C_20021018_ME
Largest Panel Number	✓	Study Zipfile Name	✓
Only Printed Panel	✓	State Plane Unit	FEET
Horizontal Datum	✓	Distribute Transportation	✓ T
Vertical Datum	✓	DOQ Based	✓ T
Projection	✓	Show Secondary Grid	T
		Secondary Grid	NAD 1983 HARN St

Standard
 Enhanced

An example of Study_Info's Add New Row dialog's values when a record already exists.

The **Add New Row** dialogs related to the L_* tables only create new records. To modify existing table records, please use standard ArcMap functionality.

Note: Your edits will be saved automatically; you will not be prompted to "Save Edits" when you stop editing.



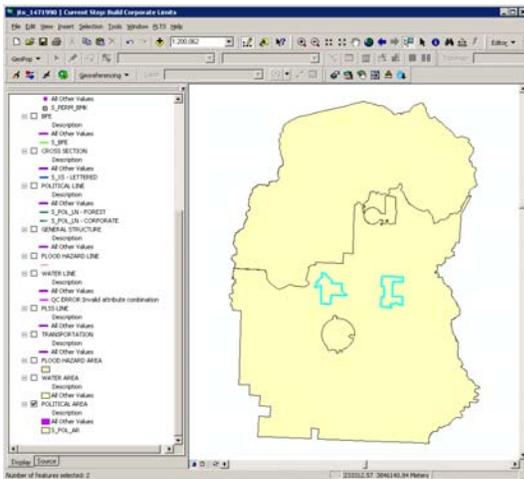
Attribute Selected Features

The **Attribute Selected Features** tool allows you to update the attribute field values via an attribute population dialog. The tool cycles through the selected set of features so that you may update each feature individually. You must be in an editing session to access this tool.

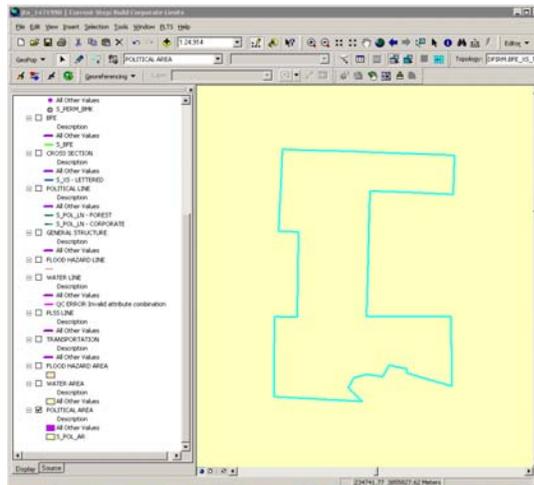
1. Select the appropriate layer in the **Target Layer** dropdown list on the **DFIRM GeoPop Pro** toolbar.

Note: You cannot edit the attributes of features in the *Base Index* (S_Base_Index), *Quad Index* (S_Quad_Index), *Label Leader* (S_Label_Ld), or *Label Point* (S_Label_Pt) with the **Attribute Selected Features** tool. If you wish to edit the *Base Index* (S_Base_Index) or *Quad Index* (S_Quad_Index) layers, you should either re-create the features with the **Quad and Base Index Generator** tool or use standard ArcMap functionality. The *Label Leader* (S_Label_Ld) and *Label Point* (S_Label_Pt) layers are created upon export and should not be edited in the SDE geodatabase.

2. Select the features you want to update using the **Edit** tool or the **Select Elements** tool.
3. Click **Attribute Selected Features**.
4. The map view is zoomed to the first selected feature, and the feature's related attribute population dialog will appear.



An example of the map view before clicking the Attribute Selected Features button.



An example of the map view after clicking the Attribute Selected Features button.

Attribute	Req?	Value
Political Area ID	✓	43616_2
Political Name 1	✓	CHATTAHOOCHEE NA
Political Name 2		White County Unincorp
County FIPS	✓	APPLING COUNTY
State FIPS	✓	GEORGIA
Community Number	✓	ABBEVILLE, CITY 0
Community ID	✓	13FED
Area Not Included	✓	F
Community Info ID		130418

Standard
 Enhanced

An example of an automatically populated Attribute Selected Features dialog.

The dialog which is opened is same dialog that is prompted with the *Create New Feature* tool. When the dialog opens, it is automatically populated with the attribute field values from the currently selected record. If the selected feature's attribute fields were not previously populated, the input boxes will contain the default values (e.g., the first domain value in the list). For detailed information about the functionality and options available in the dialogs, refer to the *Create New Feature Dialog Specification* and *Create New Feature OK Button Specifications* sections of this document.

5. Populate the attribute field input boxes as appropriate.

The dialog box titled "POLITICAL AREA" contains a table of attributes with their required status and input values:

Attribute	Req?	Value
Political Area ID	✓	43616_2
Political Name 1	✓	CHATTAHOOCHEE NA
Political Name 2		White County Unincorp
County FIPS	✓	WHITE COUNTY
State FIPS	✓	GEORGIA
Community Number	✓	FED
Community ID	✓	13FED
Area Not Included	✓	T
Community Info ID		130418

At the bottom, there are radio buttons for "Standard" (selected) and "Enhanced", along with "OK" and "Cancel" buttons.

An example of an Attribute Selected Features dialog after the attribute values were altered.

- If you wish to save the attribute values for the currently selected feature, click *OK* in the dialog. The values in the input boxes are committed to the attribute table for the newly created feature. The tool then cycles to the next selected feature.

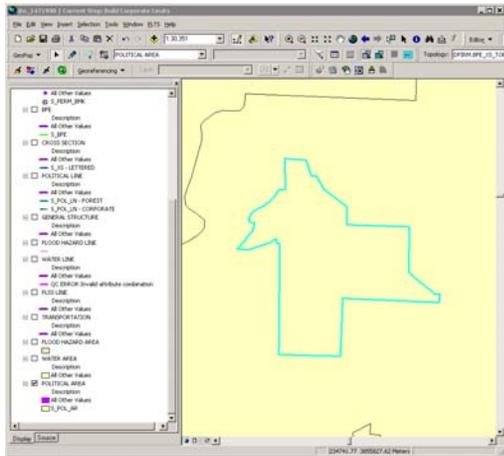
The dialog box titled "Selected Attributes of POLITICAL AREA" displays a table with the following data:

POLITICAL	POLITICAL NAME 1	POLITICAL NAME 2	COUN	STA	COM	COMMU	AREA	COMM
43616_2	CHATTAHOOCHEE NATIONAL FOREST	WHITE COUNTY UNINCORPORATED AREAS	311	13	FED	13FED	T	<Null>

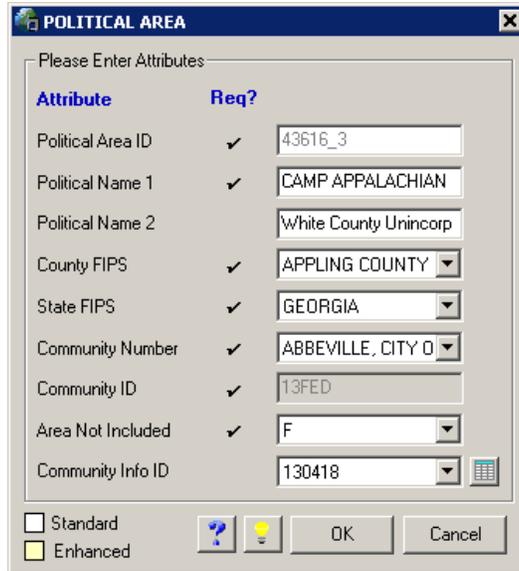
Below the table, there is a record navigation bar showing "Record: 1" and "Records: (1 out of 6 Selected.)".

An example of the selected feature's newly updated record.

When you cycle to the next selected feature, the map view will automatically zoom to that selected feature. Additionally, the dialog will be refreshed with the attribute field values that are currently stored for that selected features.



An example of the map view zooming to the next selected feature.



An example of the automatically populated Attribute Selected Features dialog for the next selected feature.

OR

- If you wish to exit the population process without saving the attributes for the currently selected feature, click *Cancel* in the dialog.

Note: If you used the *OK* button to cycle through several selected features and click the *Cancel* button to exit the dialog, please note that only the attributes for the currently selected feature in the dialog will not be saved; all previously updated feature attribute values are not affected.

Note: Your edits will be saved automatically; you will not be prompted to “Save Edits” when you stop editing.



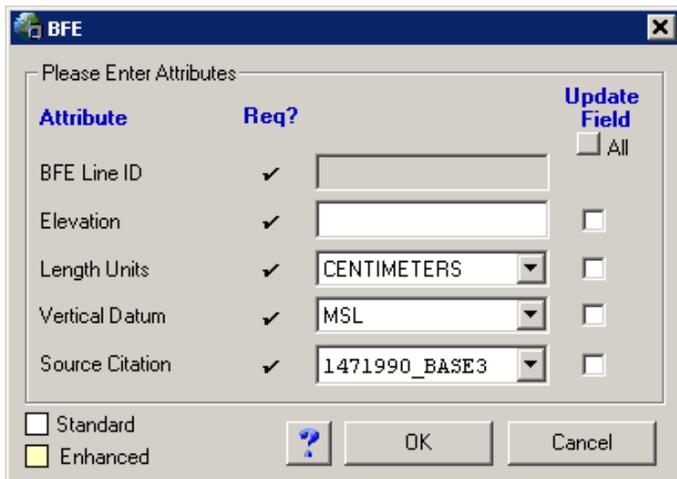
Attribute All Selected Features

The **Attribute All Selected Features** tool allows you to update attribute field values for a set of selected features via an attribute population dialog. The values will be applied to all of the selected features at once. You must be in an editing session to access this tool.

- Select the appropriate layer in the *Target Layer* dropdown list on the **DFIRM GeoPop Pro** toolbar.

Note: You cannot edit the attributes of features in the *Base Index* (S_Base_Index), *Quad Index* (S_Quad_Index), *Label Leader* (S_Label_Ld), or *Label Point* (S_Label_Pt) with the **Attribute All Selected Features** tool. If you wish to edit the *Base Index* (S_Base_Index) or *Quad Index* (S_Quad_Index) layers, you should either re-create the features with the *Quad and Base Index Generator* tool or use standard ArcMap functionality. The *Label Leader* (S_Label_Ld) and *Label Point* (S_Label_Pt) layers are created upon export and should not be edited in the SDE geodatabase.

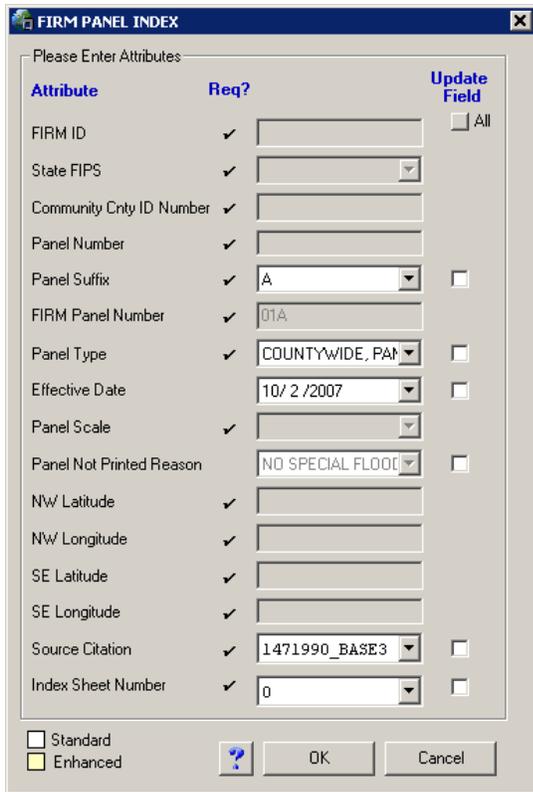
2. Select the features you want to update using the *Edit* tool or the *Select Elements* tool.
3. Click **Attribute All Selected Features**.
4. The attribute population dialog related to the target layer will appear.



An example of an Attribute All Selected Features dialog.

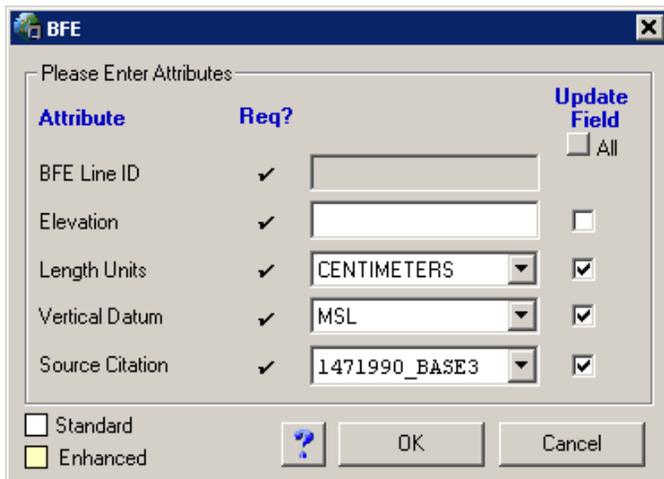
The **Attribute All Selected Features** dialog is similar to the **Create New Feature** dialog. The most significant difference is the addition of the *Update Field* column in the right-most portion of the dialog. The checks in this column control which of the attributes are updated when the *OK* button is clicked. When the dialog opens, the input box values are set to the default values (e.g., the first domain value in the list) and none of the *Update Field* check boxes are checked. For detailed information about the functionality and options available in the dialogs, refer to the *Create New Feature Dialog Specification* and *Create New Feature OK Button Specifications* sections of this document.

Attribute fields whose values are not applicable to all features are not available to be edited in the **Attribute All Selected Features** dialog. The layer's unique ID attribute field (e.g., BFE Line ID) is a good example of this type of attribute field. In this situation, the non-applicable attribute field input boxes will be disabled and do not have a corresponding *Update Field* check box. The **Attribute All Selected Features** dialog for the *FIRM Panel Index* (S_FIRM_Pan) is an extreme example of this scenario. Since several of the attribute field values are auto-calculated with the *Panel Index Generator* tool and are unique to the feature (e.g., Panel Number, SE Latitude), many of the input boxes are disabled.



An example of the Attribute All Selected Features dialog associated with the FIRM Panel Index (S_FIRM_Pan) layer.

5. Check the *Update Field* check boxes for those attribute fields you would like to update.



An example of checked Update Field check boxes.

If you would like to automatically check all check boxes or uncheck all check boxes, click the *All* All button.



An example of all of Update Field check boxes before clicking the All button.

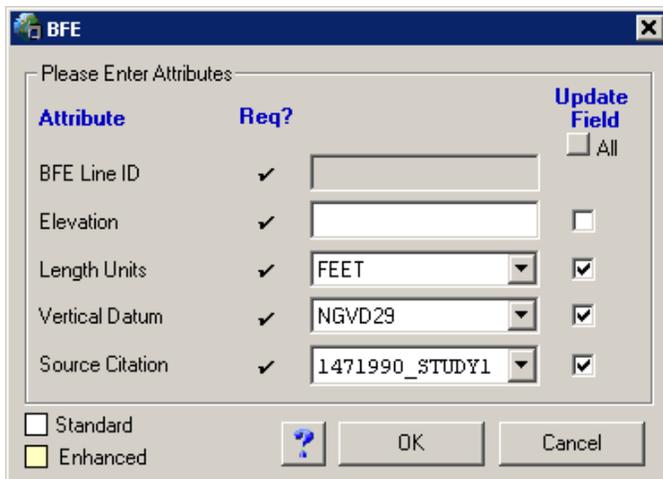


An example of all of Update Field check boxes after clicking the All button.



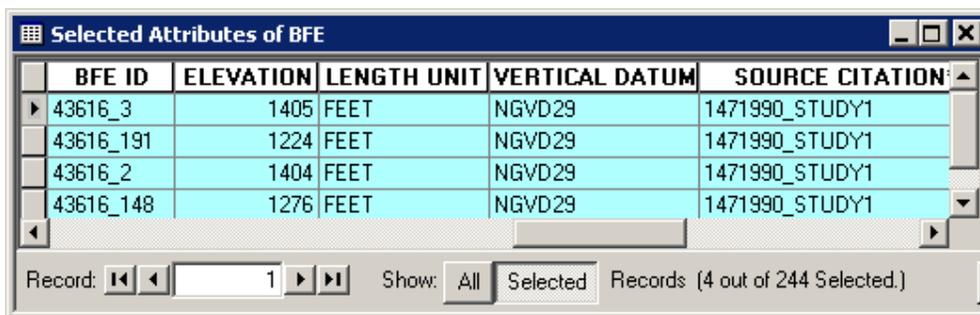
An example of all of Update Field check boxes after clicking the All button again.

6. Populate the attribute field input boxes as appropriate.



An example of a populated Attribute All Selected Features dialog.

7. If you would like to apply the input box values for the checked attribute fields to the selected features, click the *OK* button in the dialog. The values will be applied to the attribute table.



An example of the checked attribute field values saved to the selected features.

OR

7. If you would like to exit the population process without saving any input box values to the selected features, click the *Cancel* button in the dialog.

Note: Your edits will be saved automatically; you will not be prompted to “Save Edits” when you stop editing.



Panel Divider

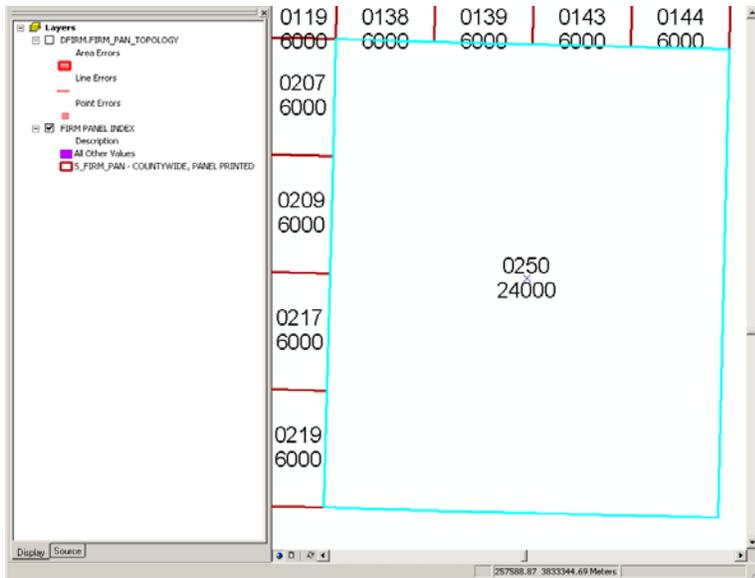
The **Panel Divider** tool splits a selected *FIRM Panel Index* (S_FIRM_Pan) layer feature into quarters. You can split a 24,000-scale panel into four 12,000-scale panels, or you can split a 12,000-scale panel into four 6,000-scale panels. The tool automatically calculates many of the attribute field values for the newly created panels. These values are based upon the study information, the panel’s spatial location, and the field values of the source panel. You must be in an editing session to access this tool.

1. Select the *FIRM Panel Index* (S_FIRM_Pan) layer in the **Target Layer** dropdown list on the **DFIRM GeoPop Pro** toolbar.

Note: If you want to display the panel number as a label to assist in this process, right-click on the “FIRM PANEL INDEX” layer in the Table of Contents and select the **Properties** menu item. Once the **Layer Properties** dialog opens, click the **Label** tab in the dialog and click the **Expressions** button. In the **Label Expression** dialog set the Expression to “[PANEL]” if it is not already set as such. Click the **OK** button to commit the Expression (the **Label Expression** dialog will automatically close). In the **Labels** tab of the **Layer Properties** dialog, check the **Label Features in this layer** option. Click the **OK** button to label the features and close the **Layer Properties** dialog.

If you would like to include the scale value as well as the panel number in the label, set the following equation as the Expression value: “[PANEL] & vbnewline & [SCALE]”. This will label each *FIRM Panel Index* (S_FIRM_Pan) feature with the 4-digit panel number followed by the panel scale on the next line.

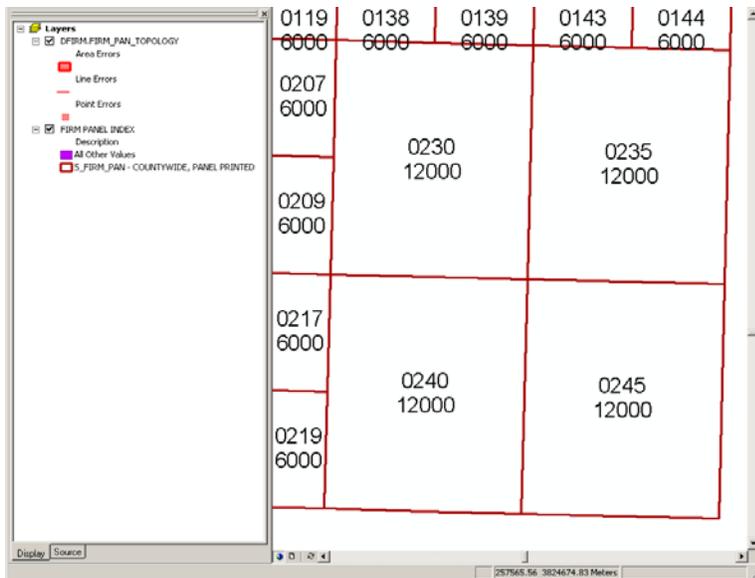
2. Select the panel you would like to divide using either the **Edit** tool or the **Select Features** tool.



An example of a selected panel that will be divided into four panels.

Note: If you have more than one panel selected, the **Panel Divider** tool will not be enabled.

3. Click **Panel Divider**.
4. The selected panel is split into quarters, and the topology is automatically validated.



An example of the resulting four panels that were created from a single selected panel.

Each time that the **Panel Divider** tool is clicked, the topology related to the *FIRM Panel Index* (S_FIRM_Pan) layer in the current extent is validated. Specifically, this topology is FIRM_PAN_TOPOLOGY. This auto-validation helps ensure that you are creating topologically clean data. If topology errors are found in your study, you need to resolve the errors before continuing in your panel division process. Acceptable topology errors such as the “Must not have gaps” error

noted at the edge of the study should be either ignored or marked as an exception. When topology is validated, all data, including adjacent study data, in the vicinity will be considered. If errors are found that relate to the adjacent study data, these errors should be either ignored or marked as exceptions.

Note: If the FIRM_PAN_TOPOLOGY topology is not loaded into the current ArcMap session, the tool will automatically add it to the Table of Contents.

When the new panel features are created, many of the attribute field values are automatically calculated. The following fields are always automatically populated based on study information and the panel's spatial location:

- *FIRM ID* (FIRM_ID)
- *PANEL NUMBER* (PANEL)
- *FIRM PANEL NUMBER* (FIRM_PAN)
- *PANEL SCALE* (SCALE)
- *NW LATITUDE* (NW_LAT)
- *NW LONGITUDE* (NW_LONG)
- *SE LATITUDE* (SE_LAT)
- *SE LONGITUDE* (SE_LONG)

Other attribute fields are automatically populated based on the values in the source panel (e.g., the originally selected panel). These values are inherited by the newly created features. If the attribute field value in the source panel is <Null>, then the newly created panels' value will be <Null>. The values for the following fields are inherited by the newly created panels:

- *STATE FIPS* (ST_FIPS)
- *COMM CNTY ID NUMBER* (PCOMM)
- *PANEL SUFFIX* (SUFFIX)
- *PANEL TYPE* (PANEL_TYP)
- *EFF_DATE*
- *PANEL NOT PRINTED REASON* (PNP_REASON)
- *SOURCE CITATION* (SOURCE_CIT)
- *INDEXSHEET*

FIRM ID	STA	COMM C	PANEL	PANE	FIRM PANEL	PANEL TYPE	EFF_DATE	PANEL	PANEL	NW LATIT	NW LONGIT	SE LATITU	SE LON
1471990_161	13	311C	0250	D	13311C0250D	COUNTYWIDE, PANEL PRINTED	1/25/2008	24000	<Null>	34 37 30.000	-83 37 30.000	34 30 00.000	-83 30 00

Record: 1 Show: All Selected Records (1 out of 75 Selected.) Options

An example of the attribute field values for the source panel.

FIRM ID	ST	COM	PANE	PA	FIRM PANEL	PANEL TYPE	EFF_DATE	PANEL	PANEL	NW LATIT	NW LONGIT	SE LATITU	SE LONGIT	SOU
1471990_163	13	311C	0235	D	13311C0235D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 37 30.000	-83 33 45.000	34 33 45.000	-83 30 00.000	1471990
1471990_164	13	311C	0240	D	13311C0240D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 33 45.000	-83 37 30.000	34 30 00.000	-83 33 45.000	1471990
1471990_165	13	311C	0245	D	13311C0245D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 33 45.000	-83 33 45.000	34 30 00.000	-83 30 00.000	1471990
1471990_162	13	311C	0230	D	13311C0230D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 37 30.000	-83 37 30.000	34 33 45.000	-83 33 45.000	1471990

Record: 0 Show: All Selected Records (4 out of 78 Selected.) Options

An example of the attribute field values for the newly created panels.

Note: Use the *Attribute Selected Features* tool or the *Attribute All Selected Features* tool to update/edit the attribute field values.

Note: If you select a 6000-scale panel and click the **Panel Divider** tool, you will get an error. The 6000-scale is the largest possible scale.

Note: Your edits will be saved automatically; you will not be prompted to “Save Edits” when you stop editing.



Panel Merger

The **Panel Merger** tool fuses two or more selected *FIRM Panel Index* (S_FIRM_Pan) layer features together. Built-in merging rules prevent you from combining unrelated panels. The tool automatically calculates many of the attribute field values for the newly created panel. These values are based upon the study information, the panel's spatial location, and the field values of the source panels. You must be in an editing session to access this tool.

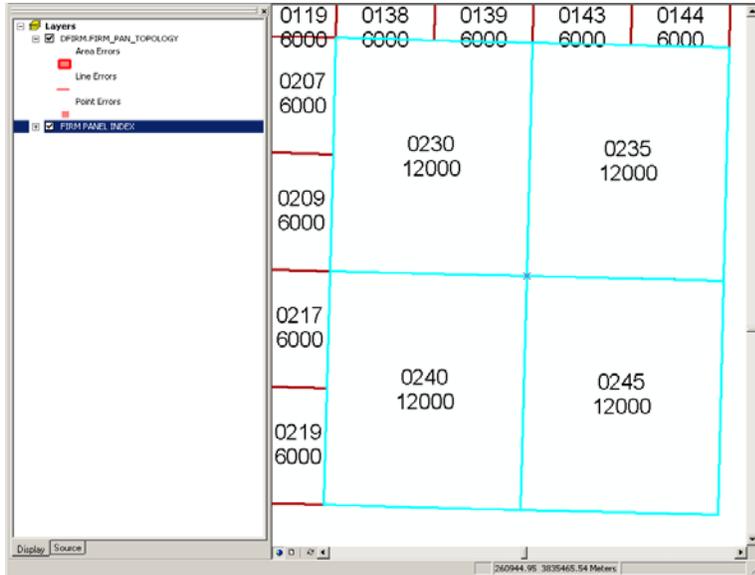
1. Select the *FIRM Panel Index* (S_FIRM_Pan) layer in the *Target Layer* dropdown list on the **DFIRM GeoPop Pro** toolbar.

Note: If you want to display the panel number as a label to assist in this process, right-click on the “FIRM PANEL INDEX” layer in the Table of Contents and select the *Properties* menu item. Once the *Layer Properties* dialog opens, click the *Label* tab in the dialog and click the *Expressions* button. In the *Label Expression* dialog set the Expression to “[PANEL]” if it is not already set as such. Click the *OK* button to commit the Expression (the *Label Expression* dialog will automatically close). In the *Labels* tab of the *Layer Properties* dialog, check the *Label Features in this layer* option. Click the *OK* button to label the features and close the *Layer Properties* dialog.

If you would like to include the scale value as well as the panel number in the label, set the following equation as the Expression value: “[PANEL] & vbnewline & [SCALE]”. This will label each

FIRM Panel Index (S_FIRM_Pan) feature with the 4-digit panel number followed by the panel scale on the next line.

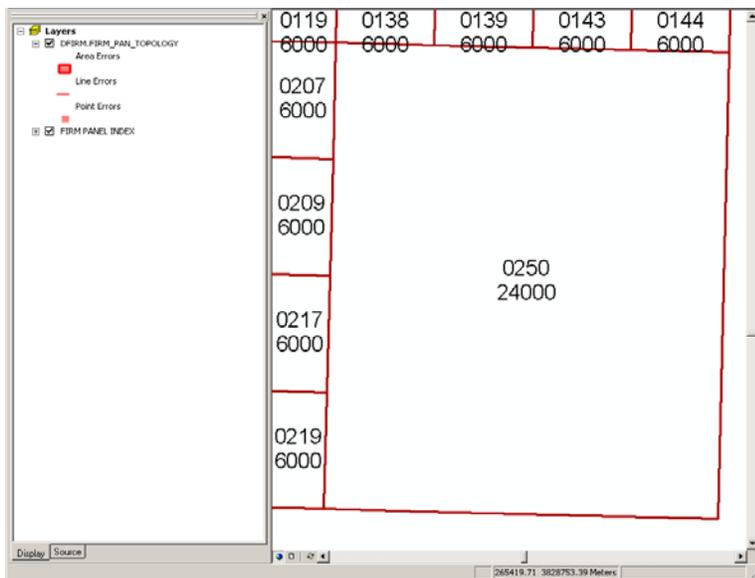
2. Select the panels you wish to merge using either the **Edit** tool or the **Select Features** tool.



An example of selected panels that will be merged into one panel.

Note: The **Panel Merger** tool will not be enabled unless there are two or more panels selected.

3. Click **Panel Merger**.
4. The selected panels are merged into a single panel, and the topology is automatically validated.

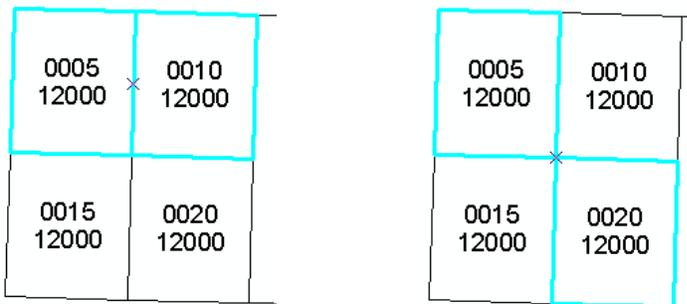


An example of the resulting single panel that was created from the four selected panels.

Each time that the **Panel Divider** tool is clicked, the topology related to the *FIRM Panel Index* (S_FIRM_Pan) layer in the current extent is validated. Specifically, this topology is FIRM_PAN_TOPOLOGY. This auto-validation helps ensure that you are creating topologically clean data. If topology errors are found in your study, you need to resolve the errors before continuing in your panel division process. Acceptable topology errors such as the “Must not have gaps” error noted at the edge of the study should be either ignored or marked as an exception. When topology is validated, all data, including adjacent study data, in the vicinity will be considered. If errors are found that relate to the adjacent study data, these errors should be either ignored or marked as exceptions.

Note: If the FIRM_PAN_TOPOLOGY topology is not loaded into the current ArcMap session, the tool will automatically add it to the Table of Contents.

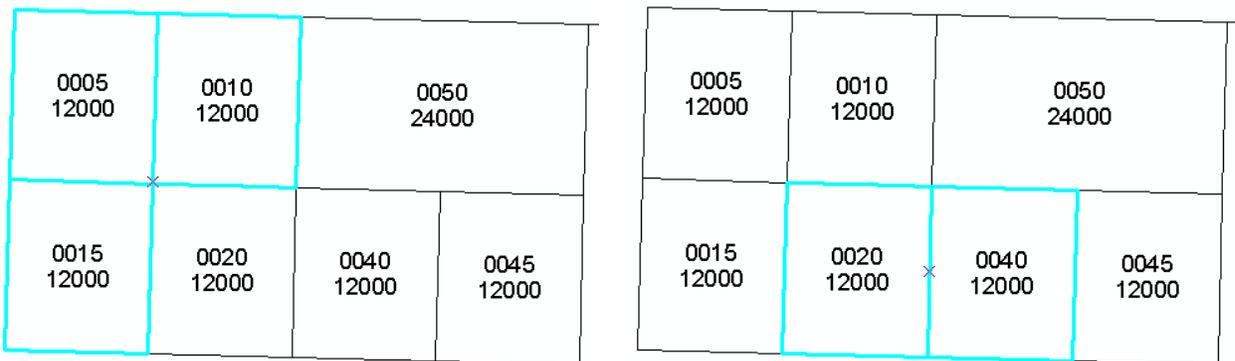
You may only merge panels which share a common border. If you attempt to merge disconnected panels, you will receive an error.



An example of correct panel selection.

An example of incorrect panel selection.

You may only merge panels which reside within the same 24,000-scale panel. If you attempt to merge panels that are associated with different 24,000-scale panels (even if they share a common boundary), you will receive an error.



An example of correct panel selection.

An example of incorrect panel selection.

You may only merge 6,000-scale panels which reside within the same 12,000-scale panel. If you attempt to merge panels that are associated with different 12,000-scale panels (even if they share a common boundary), you will receive an error.

0001 6000	0002 6000	0010 12000
0003 6000	0004 6000	
0011 6000	0012 6000	0020 12000
0013 6000	0014 6000	

An example of correct panel selection.

0001 6000	0002 6000	0010 12000
0003 6000	0004 6000	
0011 6000	0012 6000	0020 12000
0013 6000	0014 6000	

An example of incorrect panel selection.

You may only merge one scale level at a time. For instance, you cannot select 16 6,000-scale panels and get a single 24,000-scale. In this scenario you must merge 4 6,000-scale panels at a time and to get a single 12,000-scale panel. The 12,000-scale panels can be merged into a single 24,000-scale panel.

0005 12000		0010 12000	
0011 6000	0012 6000	0016 6000	0017 6000
0013 6000	0014 6000	0018 6000	0019 6000

An example of correct panel selection.

0005 12000		0006 6000	0007 6000
0005 12000		0008 6000	0009 6000
0011 6000	0012 6000	0016 6000	0017 6000
0013 6000	0014 6000	0018 6000	0019 6000

An example of incorrect panel selection.

When the new panel feature is created, many of the attribute field values are automatically calculated. The following fields are always automatically populated based on study information and the panel's spatial location:

- *FIRM ID* (FIRM_ID)
- *PANEL NUMBER* (PANEL)
- *FIRM PANEL NUMBER* (FIRM_PAN)
- *PANEL SCALE* (SCALE)
- *NW LATITUDE* (NW_LAT)
- *NW LONGITUDE* (NW_LONG)
- *SE LATITUDE* (SE_LAT)
- *SE LONGITUDE* (SE_LONG)

Other attribute fields are automatically populated based on the values in the source panels (e.g., the originally selected panels). These values are inherited by the newly created feature. If the attribute field value in the source panels is <Null>, then the newly created panels' value will be <Null>. If the attribute field value in the source panels are different (e.g., different effective date values), one

of the values will be selected as the value for the newly created panel. The values for the following fields are inherited by the newly created panel:

- STATE FIPS (ST_FIPS)
- COMM CNTY ID NUMBER (PCOMM)
- PANEL SUFFIX (SUFFIX)
- PANEL TYPE (PANEL_TYP)
- EFF_DATE
- PANEL NOT PRINTED REASON (PNP_REASON)
- SOURCE CITATION (SOURCE_CIT)
- INDEXSHEET

FIRM ID	ST	COM	PANE	PA	FIRM PANEL	PANEL TYPE	EFF_DAT	PANE	PANEL NO	NW LATIT	NW LONGI	SE LATITU	SE LONGIT	SOURC
1471990_168	13	311C	0245	D	13311C0245D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 33 45.000	-83 33 45.000	34 30 00.000	-83 30 00.000	1471990
1471990_167	13	311C	0240	D	13311C0240D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 33 45.000	-83 37 30.000	34 30 00.000	-83 33 45.000	1471990
1471990_166	13	311C	0235	C	13311C0235C	COUNTYWIDE, NOT PRINTED	4/13/1999	12000	1471990_3	34 37 30.000	-83 33 45.000	34 33 45.000	-83 30 00.000	1471990
1471990_165	13	311C	0230	D	13311C0230D	COUNTYWIDE, PANEL PRINTED	1/25/2008	12000	<Null>	34 37 30.000	-83 37 30.000	34 33 45.000	-83 33 45.000	1471990

An example of the attribute field values for the source panels.

FIRM ID	ST	COM	PANE	PA	FIRM PANEL	PANEL TYPE	EFF_DAT	PANE	PANEL	NW LATITU	NW LONGIT	SE LATITUD	SE LONGITU	SOI
1471990_167	13	311C	0250	D	13311C0250D	COUNTYWIDE, PANEL PRINTED	1/25/2008	24000	<Null>	34 37 30.000	-83 37 30.000	34 30 00.000	-83 30 00.000	147199

An example of the attribute field values for the newly created panel.

Note: Use the *Attribute Selected Features* tool or the *Attribute All Selected Features* tool to update/edit the attribute field values.

Note: Your edits will be saved automatically; you will not be prompted to “Save Edits” when you stop editing.

Troubleshooting

Problem: I would like to select a value from the *Feature Type* dropdown list, but the list is disabled.

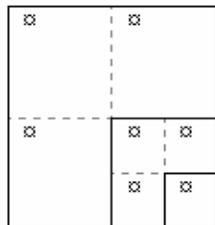
Solution: The *Feature Type* list is only enabled for those layers that have associated feature types. Verify that the layer selected in the *Target Layer* is one of the following: *Flood Hazard Line* (S_Fld_Haz_Ln), *General Structure* (S_Gen_Struct), *PLSS Line* (S_PLSS_Ln), *Political Line* (S_Pol_Ln), *Transportation* (S_Trnsport_Ln), or *Water Line* (S_Wtr_Ln).

Problem: An attribute population dialog does not appear after I draw my feature.

Solution: Verify that you are using the *Create New Feature* tool or the *Trace* tool on the **DFIRM GeoPop Pro** toolbar. The tools on the **Editor** toolbar, including the *Sketch Tool*, do not prompt an attribute population dialog. If you are using the correct tool, verify that you have double-clicked to end your sketch.

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

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



Problem: I cannot add a feature to a feature class that is visible (there is a 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 to a larger scale, such as 1:3000, and try to add the feature.

Problem: I digitized several features, but when I open the attribute table, many fields have the value "<Null>".

Solution: Verify that you are using the *Create New Feature* tool or the *Trace* tool on the **DFIRM GeoPop Pro** toolbar. The tools on the **Editor** toolbar, including the *Sketch Tool*, do not prompt an attribute population dialog. If you are using the correct tool, make sure you wait until the attribute population dialog appears; do not continue digitizing another feature until you have closed the dialog.

Problem: I have world files for the image files, but I get an error telling me that the image is not projected when I use the *Base and Quad Index Generator* tool to create my *Base Index* (S_Base_Index) features.

Solution: World files contain only a set of projected coordinates. The world file does not contain a statement about the actual projection. The image file itself stores the projection. If the image is not projected but the image has an associated world file, when the image is added to the Table of Contents, ArcMap makes a best guess of where the image should be placed. The *Base and Index Generator* tool only reads the projection defined on the image. Before attempting to create your *Base Index* (S_Base_Index) features, you should define the projection on your image files.

Problem: I have a value in the *PROJECTION_ZONE* (PROJ_ZONE) attribute field in Study_Info, yet I get an error telling me that there is not a projection defined when my ArcMap session opens.

Solution: In the DFIRM Tools environment, the data is stored in a Geographic coordinate system so that all states and territories may be stored in a single nationwide layer. So that your study is in your desired projection, when ArcMap is launched, the Layers data frame is automatically projected-on-the-fly according to the *PROJECTION_ZONE* (PROJ_ZONE) field value in the Study_Info table. The *PROJECTION_ZONE* (PROJ_ZONE) field is linked to an internal look-up table which contains a list of projection zones. The unique ID of the projection from the internal look-up table must be stored in the *PROJECTION_ZONE* (PROJ_ZONE) field. For instance the formal projection zone code for the projection NAD 1983 UTM Zone 17 is "17". Yet, the unique ID value "2007" (from the internal look-up table), must be stored in the *PROJECTION_ZONE* (PROJ_ZONE) field.

If your record contains the formal projection zone code value rather than the unique ID from the internal look-up table, when ArcMap is launched, the correct projection zone will not be able to be located in the internal projection zone look-up table, and the data frame will not be able to be projected. To ensure that you have the proper value in the *PROJECTION_ZONE* (PROJ_ZONE) field, you should use the *Add New Row* tool to define the study's projection.

Problem: When using the *Panel Merger* and *Panel Divider* tools to create my *FIRM Panel Index* (S_FIRM_Pan) features, why do the edits have to be saved? If I make a mistake, this makes it more difficult to correct the error.

Solution: Since the data is actually stored in a Geographic coordinate system, the DFIRM Tools environment works on a projected data frame. When creating the *FIRM Panel Index* (S_FIRM_Pan) features, the tools split and merge the features in its native Geographic coordinate system to ensure that no error is introduced. To do so, according to the ArcMap coding language, the edits must be saved before re-projecting the data to the specified projection.

Problem: Am I able to create more than one ortho image catalog?

Solution: The *Create Image Catalog* tool only creates an image catalog with the filename "Ortho_Catalog.dbf". If the file already exists, you will receive an error telling you that the ortho image catalog already exists. If you do not care to keep the existing Ortho_Catalog.dbf file, simply delete it from the MIP directory structure and generate a new ortho image catalog. If you wish to keep the existing ortho image catalog, simply rename the file in the MIP directory structure. Once the file is renamed, the *Create Image Catalog* tool will create a new file named "Ortho_Catalog.dbf". All ortho image catalogs, regardless of their filename, may be added into the ArcMap session with the *DFIRM Reference Data Loader* tool. The same rules and process apply to the quad image catalog.

Problem: Am I able to create an ortho image catalog using just some of the image files in the J:\FEMA\

Solution: No. The Create Image Catalog tool considers all projected images in the Ortho folder. The same rule applies to the quad image catalog.

Problem: When do I populate Gutter = T for Flood Hazard Line (S_Fld_Haz_Ln) features?

Solution: First you need to determine whether the *Flood Hazard Line* (S_Fld_Haz_Ln) feature is a zone break or a "limit" line. According to FEMA's database specifications, a zone break line type should be used "between different 1-percent annual chance flood hazard areas (e.g., between A and AE, or AE and VE zones) and between areas of the same flood zone but different elevation, depth, or velocity." When the *LINE TYPE* (LN_TYP) value is "ZONE BREAK", the *IS GUTTER* (GUTTER) value should be set to "T".

If the line represents a limit (e.g., Limit of Study, Limit of Detailed Study) and you wish the line to be symbolized as a white line, you must set the *IS GUTTER* (GUTTER) value to "T". In this scenario, if the *IS GUTTER* (GUTTER) value is "F", the line will be symbolized as a black line. You want to be sure to use the limit line type where appropriate so that the appropriate annotation label will be generated by the *LabelPanel* tool.

If the line is a floodway boundary that is also a gutter (i.e., when your AE floodway zone meets up with any other A zone), the floodway symbology takes precedence over the gutter symbology. In this scenario, your LINE TYPE (LN_TYP) value would be "FLOODWAY" and your IS GUTTER (GUTTER) value should be "F". To display the gutter on the panel, use the *Add Vector Gutter* or *Add Ortho Gutter* tool on the **DFIRM Annotation** toolbar to create a graphic gutter parallel to the floodway line. Note that the gutter should be placed outside of the floodway zone.

Problem: Which Line Type (LN_TYP) values should I use for the following types of Political Line (S_Pol_Ln) features: national wildlife refuge; Indian reservations; state wildlife areas; unnamed state lands that are not parks or wildlife areas; unnamed federal lands (e.g., lands managed by the Bureau of Land Management or U.S. Bureau of Reclamation); and military bases?

Solution: We recommend that you select the following *Political Line* (S_POL_LN) *LINE TYPE* (LN_TYP) values:

Entity	Line Type
National wildlife refuge	PARK
Indian reservation	RESERVATION
State wildlife areas	PARK or FOREST
Unnamed state lands that are not parks or wildlife areas	RESERVATION
Unnamed federal lands	RESERVATION
Military bases	RESERVATION or according to the jurisdiction type that the entity falls within (e.g., COUNTY, CORPORATE)

The RESERVATION line type applies to more entities than just Indian reservations. It also represents military installations and state and federal lands that are reserved for state/federal use.

Problem: I need to update my *PANEL SUFFIX* (SUFFIX) value in the *FIRM Panel Index* (S_FIRM_Pan) layer, but I have already created most of my spatial data and annotation. What will be impacted by my change?

Solution: Besides the noted change to the *PANEL SUFFIX* (SUFFIX) field in the *FIRM Panel Index* (S_FIRM_Pan) layer, you will need to update your *FIRM PANEL NUMBER* (FIRM_PAN) field values. In the L_MT1_LOMC table, you will need to update the values in the *FIRM PANEL NUMBER* (FIRM_PAN) field. In the L_Pan_Revis table, you will need to update the values in the *FIRM PANEL NUMBER* (FIRM_PAN) field.

Depending on which panels are affected, you may need to update the values in the FIRM_PAN_NUMBER field in all of the annotation layers (i.e., *6000_TXT, *6000_LDR, *6000_SUP, *12000_TXT, *12000_LDR, *12000_SUP, *24000_TXT, *24000_LDR, and *24000_SUP). Although it may appear that the LBZMAPID value should also be updated because it stores the panel number, do not update this field as it links to internal tables. Without this link, you cannot edit your annotation features appropriately.