

Building a GIS from the Beginning: Part 3: Editing Techniques

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Part 3: Editing Techniques

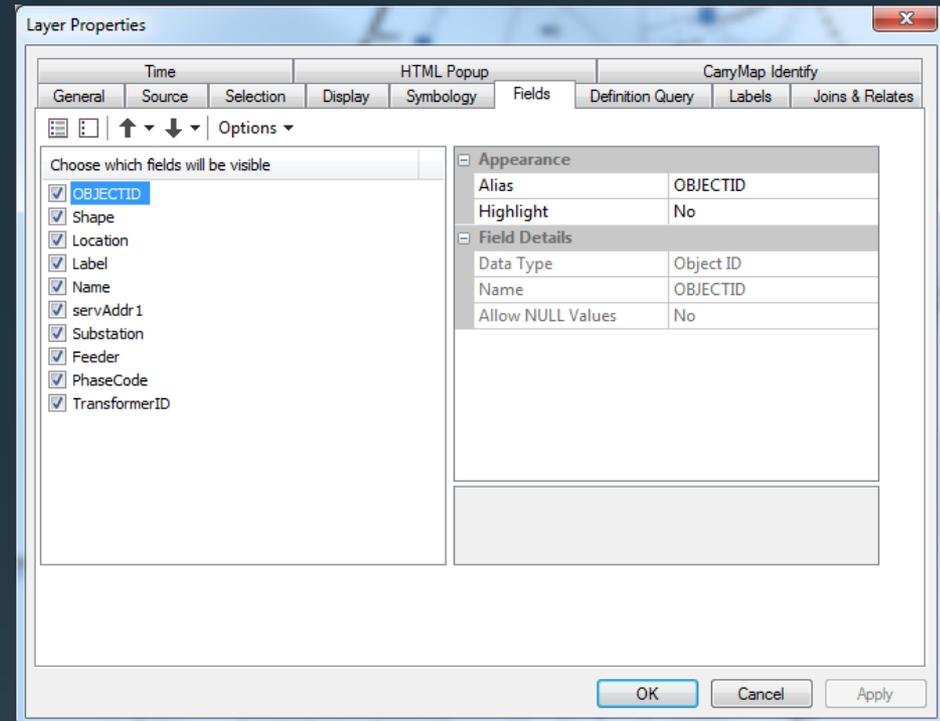
Presentation agenda

- Editing setup and templates
- Creating data
- Feature construction
- Using snapping
- Attribute edits
- Bulk editing
- Tips and tricks



Editing Setup and Templates

- Set up layer properties
 - Benefits
 - Determine how layers are displayed and provide properties for feature templates



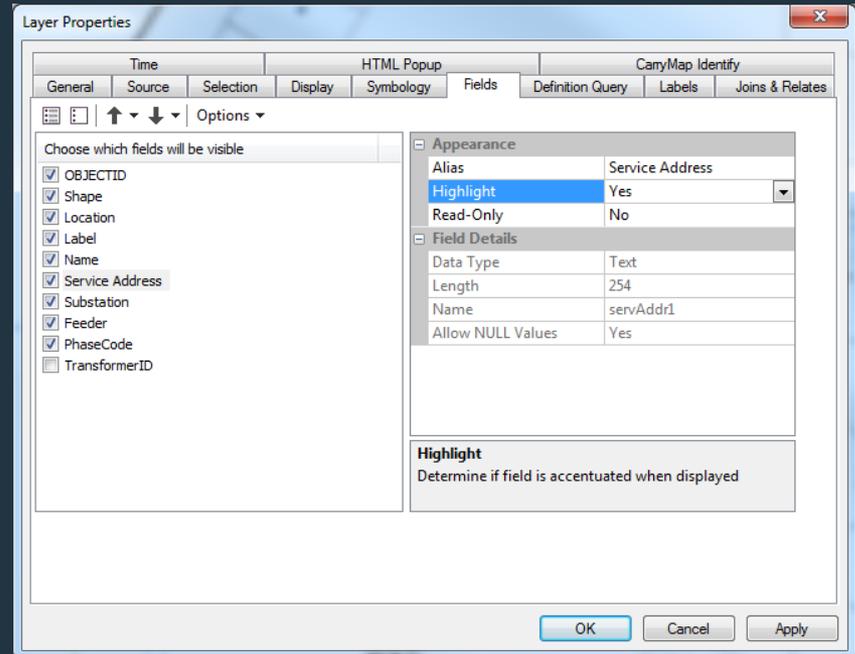


Editing Setup and Templates

- Fields

- On/off
- Aliases
- Read only
- Highlight
- Order

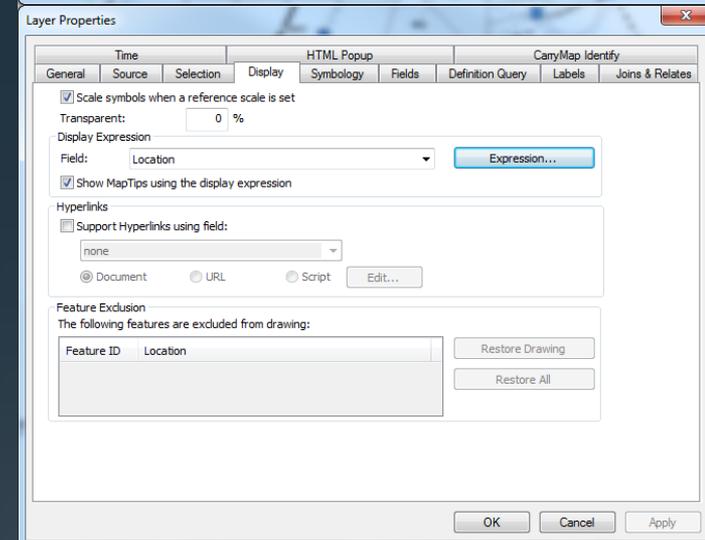
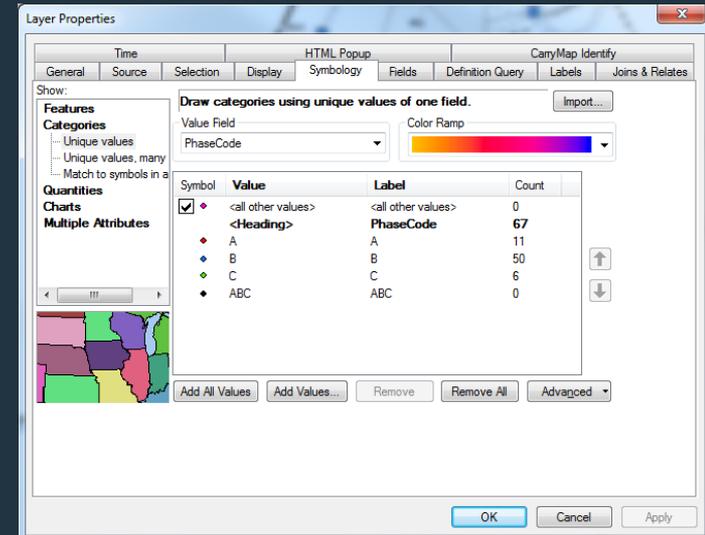
– Note leave OBJECTID and SHAPE fields turned on because they are used to manage the features in a GIS server service





Editing Setup and Templates

- Symbols
 - Symbols are appropriate
 - Symbols are unique
 - Labels are descriptive
- Display tab
 - Display expression
 - Attributes window
 - Selection chip
 - Table of contents
 - Other places in ArcGIS





Editing Setup and Templates

- Set a feature template's
 - Default construction tool
 - Default attribute values
 - Use domains when possible
 - Note:
 - Templates don't automatically update
 - Be careful of definition queries

Template Properties

General

Name:

Description:

Tags:

Default Tool:

Target Layer: ServiceLocation

Drawing Symbol:

View

Location	<Null>
Label	<Null>
Name	<Null>
servAddr1	<Null>
Substation	<Null>
Feeder	<Null>
PhaseCode	A
TransformerID	<Null>

OK Cancel Apply



Using Snapping

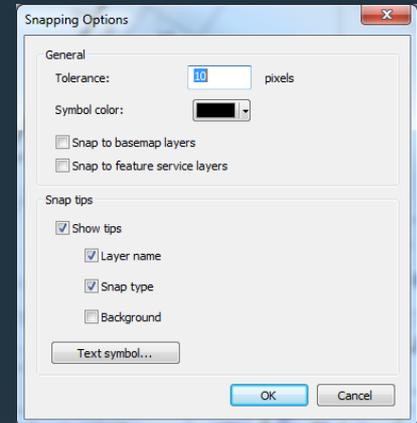
- Snapping tool

- Set what to snap to
- Point, end, vertex, edge, intersection, midpoint, tangent



- Editor > Snapping > Options

- Set tolerance
 - Distance it snaps to



- Classic snapping

- Editor > Editing options > General > Check classic snapping
- Used to set specific layers it can snap to
- Editor > Snapping > Snapping Window

Snapping Environment			
Layer	Vertex	Edge	End
ServiceLocation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TransformerBank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SwitchDeviceBank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OHPrimaryLine	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
UGPrimaryLine	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
UGSecondaryLine	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Streets	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parcels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



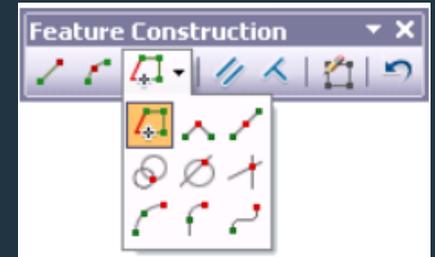
Creating Data

- Creating points, lines, polygons
 - Editor > Start Editing
 - Choose a point feature and create a new point
 - To move it to a different location > Select and move it
 - Or double click > right click > Choose move to if you have a GPS point, or move if you want it moved in an x,y position
 - Choose a line feature and connect two points
 - Choose starting point, vertexes between, end point
 - Double click to end, or right click > Finish sketch, or F2
 - Choose a polygon feature and draw an area
 - Construct similarly to a line feature



Feature Construction Lines

- Strait Segments – Default
 - Straight line between vertex
- Direction-Distance
 - Allows you to create a point or vertex using a distance from a known point plus a direction from a known point to define a bearing line
 - Press the D key to enter a distance
- Distance-Distance
 - Allows you to create a point or vertex at the intersection of two distances from two other points
 - Press the D key to enter a distance
- Endpoint Arc
 - Allows you to specify the start and endpoints of the curve, then define a radius for the curve
 - Press the R key to enter the radius





Feature Construction Lines

- Intersection
 - Creates a point or vertex at the place where two segments would intersect
- Midpoint
 - Allows you to place a point or vertex by clicking two points; the new point or vertex is placed at the midpoint of the line between these points
- Right Angle
 - Limits a segment to be at a 90-degree
- Trace
 - Helps you create segments that follow along existing segments
 - Use Offset to follow a feature at a distance
 - Press O key to set offset

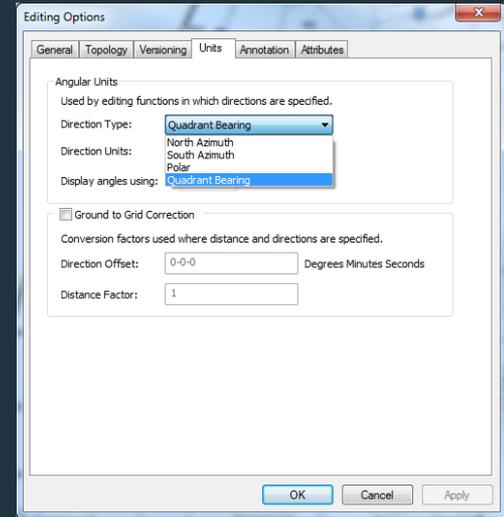
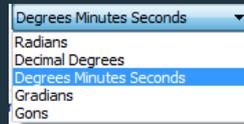


Feature Construction

- Setup units

- Editor > Options > Units tab

- Choose your standard direction type
- Choose Units



- Construct a polygon with units and measures

- Place first point at the of another polygon

- N 65-10-20 W 137.32, deflect 270 for 500in,

- S 65-10-20 E 137.32, finish sketch



Vertices Editing

Edit Vertices

- Adding vertices
- Removing vertices
- Stretching



Sketch Properties

- Modify position of vertices
- Add and delete vertices

#	X	Y
0	2607672.743	758602.749
1	2607612.580	758599.186



Reshape Features Tool

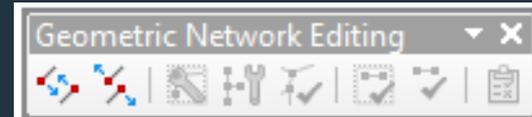
- The tool lets you reshape a line by constructing a sketch over a selected feature
- Works well for adding or removing vertices
- Faster than individual vertex editing
- Works with a geometric network
 - Keeps connectivity





Geometric network editing

- Connect and disconnect
- Stretching and moving
 - When a junction is moved, the network features to that is connected moves with it to maintain connectivity
- Connectivity models
 - Complex: allows you to snap features to the edge of another feature without breaking it
 - Simple: each line feature is broken at a junction





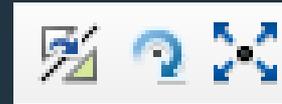
Other Edit Tools

- Merging features
 - Select multiple features to merge into one feature
 - Be cautious of multipart features
 - Won't work with a geometric network
- Copy parallel
 - Allows you to copy a feature at a set distance
 - Works to copy to other layers
 - Both sides, or one side based on digitized direction



Other Edit Tools

- Mirror
 - Select features (even if on different layers)
 - Draw a mirror line to mirror (copy) the selected features
- Rotate
 - Select feature
 - Position anchor
 - Pres A key to type angle
- Scale
 - Select feature, position anchor
 - Pres F key to type scale factor





Other Edit Tools

- Constructing points on a line
 - Select a line feature
 - Editor > construct points
 - Enter your specifications
- Split
 - Choose a line
 - Editor > split
 - Enter your specifications

Construct Points

Template... A

Line Length: 81.117

Construction Options

Number of Points

Distance

By Measure

Create additional points at start and end

Orientation

From Start point of Line

From End point of Line

OK Cancel

Split

Line Length: 81.117

Split Options

Distance

Into Equal Parts

Percentage

By Measure 0

Orientation

From Start Point of Line

From End Point of Line

OK Cancel



Attribute Edits

- Must be in an edit session
- Editor > Start Editing
- Select a feature
- Open attribute window
 - Editor > Editing Window > Attributes
- Select fields to update
 - Type in the data
- Select multiple attributes to update together
 - Select highest level layer name
 - Type in data
 - All features will have the same attribute
- Copy and paste
 - Right click on a feature > Copy Attributes
 - Right click on the feature you want updated > Paste Attributes
 - Both features will have the same data

OBJECTID	9
Location	28QCC03-207
Label	207
Name	North Mankato Resident
servAddr1	19 North Mankato Road
Substation	14
Feeder	5
PhaseCode	C
TransformerID	TRF7

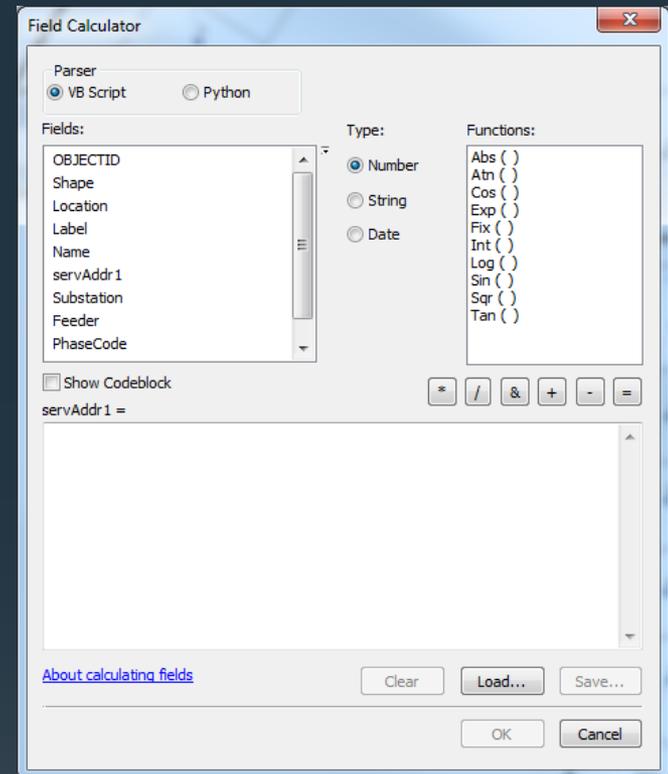
OBJECTID	
Location	
Label	
Name	North Mankato Resident
servAddr1	



Bulk Editing

Field Calculations

- Right click on a layer > Open attribute table
- Select multiple features you want to update
 - If no records are selected, all records will be updated
- Right click on the column you want to update data on > Field Calculate
- Enter in the data you want all features to have
 - Note text must be in “quotes”
 - Numbers do not require quotes





Bulk Editing

Field calculations using an existing field

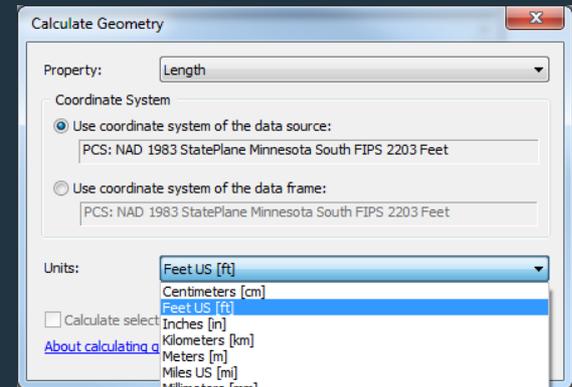
- Same process as before except choose the fields you want
- Process to join two fields into one expression
- Process to split up a single field into multiple
 - Service points lets make all labels a three digit number
 - Select by attributes `len([Label])=2`
 - Field Calculator `"0"&[Label]`



Bulk Editing

Calculate geometry

- Calculate X,Y of a point
- Calculate length of a line
- Calculate area of a polygon
- Similar to field calculator
 - Right click and choose Calculate Geometry
 - Choose property, coordinate system, and units > OK





Tips and Tricks

Basic

- Best to have all data in the same coordinate projection
 - Performance!
- Best to have all data you want to edit within a single data source
 - Will not have to start and stop edits often
- Definition query: works best with discrete (=) queries
 - Performance!



Tips and Tricks

- Save MXD's and edits
 - Especially before adding large datasets
 - Before printing a map
 - After digitizing features
- Setup different MXD's for different tasks
- Use find and replace in the attribute table
 - It gives you the ability to search and optionally replace text or values in an attribute table
- Customize your toolbar
 - Put tools you use most often on a new toolbar



Tips and Tricks

Feature templates

- Setup multiple templates for the same feature
 - Each can have different attribute defaults and tools
- Delete templates you are not using
- Use Filter by and Group by
 - Type, layer, frequency
- Use search if template list is long
 - Add tags and descriptions for searching
- Why are my feature templates hidden?
 - To avoid creating features that cannot be drawn



Tips and Tricks

- Switching among tools while editing
- Use keyboard shortcuts: E, C, X, Z, and B
 - E key to toggle among construction, Edit, and Edit Annotation tools
 - C key to pan
 - X key to zoom out
 - Z key to zoom in
 - B key to zoom and pan continuously
 - Tab key to move the Feature Construction toolbar



Tips and Tricks

- Switching among tools while editing
- Editing keyboard shortcuts:
 - E key - Toggle between construction, Edit, and Edit Annotation tools
 - CTRL key - Move the selection anchor
 - SHIFT key - Add to/Remove from the selection
 - N key - Select next feature



Tips and Tricks

- Best advice in using ArcGIS for editing is to read the help file
 - <http://desktop.arcgis.com/en/arcmap/>
 - Practice concepts in the help file
 - Don't be afraid to try something new
- Second best advice
 - Ask questions, share successes with colleagues, peers, blogs, conference attendees...



QUESTIONS?

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