Editing in ArcGIS 10

Presentation Objectives
What's Changed
Feature Templates
Construction Tools
Editing Tools
Snapping
Editing Attributes
Some tips and Tricks if time

This PowerPoint will be available at www.junipergis.com>links >presentations
Editing in ArcGIS 10

What’s Changed

Editor Toolbar - Old Style

Editor Toolbar - ArcGIS 10
Editing in ArcGIS 10

What's Changed

Start Editing

Normal Start

New option to start editing
Editing in ArcGIS 10

What's Changed

Editor Toolbar - Old Style

Sketch Tools now are upfront, or...
Editing in ArcGIS 10
What's Changed

Editor Toolbar - Old Style

... on the Feature Construction “mini” toolbar
Editing in ArcGIS 10

What's Changed

Editor Toolbar - Old Style

ArcGIS 10

Some Tasks in Create Features

Feature Templates
Editing in ArcGIS 10
What happened to the Task List?

9.x Task List options – where they are now

Task list items now on Editor Toolbar,

- Construction Tools
- Advanced Editing Toolbar
- Topology Toolbar

or other toolbars

Old Style

Add to Toolbar
Editing in ArcGIS 10
ArcGIS 10 Editing Overview

**Feature Templates** – used to define how features and attributes will work

**Construction Tools**

**Editing Tools**
Editing in ArcGIS 10

ArcGIS 10 Editing Overview

Snapping

Editing Attributes
The Editing Session

All edits are performed in an “Edit Session”

Table calculations can be done outside an edit session

Start an Edit Session from layer context menu or Editor menu

Editing can only be performed on data from one directory or geodatabase at a time.

ArcView can edit Shapefiles and personal geodatabases.

ArcEditor needed to edit SDE geodatabases.

Editing tools and procedures work the same for all data types and software levels.

ArcEditor and ArcInfo provide more tools
The Editing Session

Edits can be saved during an edit session or when you close the edit session.

Edits work in conjunction with “Selectable” layers

Can use any selection method to select features for editing.
The Editor Toolbar

Contains most editing commands and options

Open by clicking on the Editor Button or opening the toolbar from Customize>Toolbars.
Editing in ArcGIS 10
ArcGIS 10 Editing Overview

The Editor Menu

Start/Stop Editing; Save Edits

Move…

Construct Points… Buffer…Union… and Copy Parallel – create new features in the target layer (feature template).

Merge… Split – modify features in the same layer.

Clip – can be used to “subtract” areas from features.

Validate Features (works with geodatabases)
Editing in ArcGIS 10
ArcGIS 10 Editing Overview

The Editor Menu

Snapping – opens snapping dialog box

More Editing Toolbars

Editing Windows
Editing in ArcGIS 10
ArcGIS 10 Editing Overview

The Editor Menu

Editor Menu Options…

Options for Topology, Units, Annotation and Attributes

Sticky move tolerance

Classic Snapping

Stream Tolerance
Create Features Dialog

Combines “Target Layer” & “Sketch” tools & “Task List”

“Target Layers” become “Feature Templates”

Feature Templates based on current symbology

Some “Task List” and “Sketch” tool items included in the Construction Tools section

Construction Tools change depending on feature type

Each Template has a default tool
Feature Templates

Templates initially created from any visible layer in editable data frame/folder/Geodatabase.

Templates can be deleted, copied, changed.

ArcMap remembers how templates are organized next time you open the map.

If you add new layers, need to add templates.
Feature Templates

Feature Templates are based on current symbology

Can have multiple “templates” for each layer

Best to set symbology before starting to edit

Set symbology on categorical data, not quantitative

Turn off layers you don’t need
 - keeps the Create Features dialog cleaner
Editing in ArcGIS 10

Create Feature Dialog Box

Feature Templates - Template Properties

Default Construction Tool
Default Attribute Values
Tags & Description
Cannot change symbology
Editing in ArcGIS 10
Create Feature Dialog Box

Feature Templates -
Lists all Layers
New (add) Templates
Copy/Delete
Tags
Properties

Organizing Templates

Create Feature Dialog Box

Lists all Layers
New (add) Templates
Copy/Delete
Tags
Properties
Feature Templates - Organizing Templates

Filtering\Grouping Templates

Used to change order of templates
Feature Templates - Other Uses

Many editing commands require templates
Might need to create Template in advance
Editing in ArcGIS 10
Create Feature Dialog Box

Feature Templates - Creating Features

Select Template
Select Construction Tool if not using default tool
Start Sketching

Old Way -

Set Target Layer
Select Task
Select Sketch Tool
Start Sketching
Feature Construction Tools – located many places

Construct Tools in Create Features

Default Tool set as part of Template Properties

Choices change depending on feature type
Editing in ArcGIS 10

Creating Features

Feature Construction Tools

Construction Methods\Tools on Editor Toolbar

- Straight Segment (Sketch)
- End Point Arc Segment
- Midpoint
- Trace
- Right Angle
- Distance-Distance & Distance-Direction
- Intersection
- Arc Segment
- Tangent Curve Segment & Bezier Curve Segment
Feature Construction Tools

Feature Construction Mini toolbar

- Straight Segment (Sketch)
- End Point Arc Segment
- Trace; Etc…
- Constrain Parallel – select feature to mimic
- Constrain Perpendicular
- Finish Sketch
- Undo

Use Tab key to move toolbar up or down
Creating Features

Feature Construction Tools

Sketch Tool
Context Menu

Opened by right-clicking an existing feature or an empty space.

Similar to 9.x
Editing in ArcGIS 10
Creating Features

Feature Construction Tools

Topology Toolbar

Construct Polygons – Creates polygon features from selected lines

Requires ArcEditor
Editor Menu Commands for creating new features

**Construct Points**… – creates points along selected line segment

**Copy Parallel**…

**Buffer**… – creates **Polygon** if Feature Template is a Polygon, creates **closed line** if Feature Template is a Line.

**Union**… – Creates new feature from multiple selected features - works on point, line and polygon features

- some tools require a template
Feature Editing – Workings with Sketches

Sketches are the representation of the feature and are what is actually being edited.

Sketches from existing features are highlighted in cyan with green vertexes;

Sketches for new features will display with green lines and green vertexes.

Certain tools work differently depending on whether you’re selecting Sketches or Features.

Sketches are converted back to features when editing is saved or stopped.
Feature Editing – Workings with Sketches

Selection Anchor – controls how
Some commands like Move, Scale, and Rotate operate.

Change location by moving cursor over
The anchor and clicking the <Ctrl> key to
change cursor style when moving objects.

Scale and Rotate commands let you
change the anchor just by moving the
cursor to the selection anchor.
Feature Editing – Editing Vertices

Double-click a feature with the Edit Tool or click Edit Vertices on the Editor Toolbar to display sketch vertices.

Use Edit Vertices mini toolbar to Modify, Add, Delete a vertex, or to Finish Sketch or open Sketch Properties.
Editing in ArcGIS 10
Editing Existing Features

Feature Editing - Sketch Context Menu

Open by right-clicking a Sketch

Similar to 9.x

Can change segment type
Editing in ArcGIS 10

Editing Existing Features

Feature Editing

Editor Toolbar Options

- Edit Vertices
- Reshape Feature
- Cut Polygon
- Split Line
- Rotate
Feature Editing

Editor Menu Options

**Move**…

**Split**… – splits line segments by distance, percentage, number of parts

**Clip**… – uses a selected polygon to clip out other features
Editing in ArcGIS 10

Editing Existing Features

Feature Editing

Advanced Editing Toolbar
- Fillet
- Trim & Extend
- Line Intersection
- Explode Multi-part Features
- Generalize & Smooth

Topology Toolbar

Split Polygons – splits multiple polygons with a selected line
Requires ArcEditor
Editing in ArcGIS 10
Editing Existing Features

Feature Editing

Editing Toolbox – new in 10; requires ArcEditor, works on entire feature class, add to ArcToolbox

**Densify** – adds vertexes to features

**Erase Point** – erases points within or outside of selected feature

**Extend or Trim Line** – extends or trims line features to another feature up to a specified distance

**Flip Line** – flips start point to end point for lines

**Generalize** – opposite of Densify

**Snap** – snaps vertices in one layer to vertices, edges, or endpoints of another layer. Works like a bulk snap.
Editing in ArcGIS 10

Snapping

How Snapping Works

- Snaps for all features are active by default
- Snap tips show which snap/feature will be used
- Each snap type has unique icon
- Cannot set snap priority for layer or type
- Can turn snap types on/off
- Can use “classic” snapping - Editor>Options
Editing in ArcGIS 10

Snapping

How Snapping Works - Snapping Toolbar

Turn on Snapping Toolbar from Editor menu

Standard Snaps - Point, Endpoint, Vertex, Edge

Turn Snapping on/off

New Snaps - Intersection, Midpoint, Tangent

Snapping Options

Snapping tolerance is in Pixels only, not Map Units
Classic Snapping

Set snapping priority – Layer at top of list has priority

Set snap type for each layer or for sketches.

Set Snap tolerance through Snapping>Options…

Can be more useful in some cases

Turn classic snapping on in Editor>Options
Editing in ArcGIS 10

Editing Attributes

Attribute Editor

Similar to 9.x
Options for sorting fields, fields to display
Expand relationships for joins & relates
Select Layer name to edit all selected features
Select Feature to edit individual features
Editing Attributes

Field Calculator

Similar to 9.x

Can use Python or VB Script
Chapter 13: Editing Features in ArcGIS

Editing in ArcGIS – Advanced Editing Tools

Advanced Editing Toolbar

Topology Toolbar

Spatial Adjustment Toolbar
Editing in ArcGIS 10

Conclusion

Editing Setup

Organize layers by setting symbology before starting to edit

Templates initially created based on symbology

If you change symbology, you’ll need to change templates

Consider using an “Editing” map separate from “Display” map

Turn off unneeded layers to keep Create Features dialog clean

Organize table fields before starting to edit

Turn off fields like Shape, Objectid, other unused fields
Editing in ArcGIS 10

Conclusion

Editing in ArcGIS – Editing keyboard shortcuts

Shortcuts common to all editing tools
Z        Zoom In
X        Zoom Out
C        Pan
V        Show vertices
Esc      Cancel
Spacebar Suspend snapping

Edit tool
Shift    Add to/remove from selection
Ctrl     Move the selection anchor
N        Next selected feature

Trace tool
Tab      Trace the other side of an edge
O        Open Trace Options dialog box
Tips and Tricks

Editing Basics and Setup

Editor Menu - Options\Attributes

Automatically display the attributes dialog when editing
Tips and Tricks

Editing Basics and Setup

Editor Menu - Options\Units

Specifies Direction Types and Units for entering Angles

Units for Distance can be changed on-the-fly by using abbreviations – m, mi, ft, ′, etc.
Editor Menu - Edit Commands

Clip – Works with one selected feature and cuts a hole in all visible features; can be used as Auto Complete Polygon with polygons in different layers. Works with Points and Polygons.
Tips and Tricks
Editing Basics and Setup

Editor Task List - Auto Complete Polygon

Only works when completing to feature in the same layer

For the same effect in different layers, draw the new polygon overlapping an existing polygon, then clip the new polygon with the existing polygon.
Tips and Tricks

Editing Basics and Setup

Working with Sketches - Sketch Tools

Midpoint tool

Trace

Type “O” to open trace options
Tips and Tricks

Other Editing Toolbars

Advanced Toolbar

Extend\Trim – extends\trims lines to selected feature
Tips and Tricks

Other Editing Toolbars

Advanced Toolbar

Line Intersection – creates an intersection in a line at actual or implied intersection
Tips and Tricks

Other Editing Toolbars

Spatial Adjustment Toolbar

Defines which data will be adjusted.

Controls how the adjustment methods will work, including adjustment area.

Provides tools for creating and managing displacement links

Sets parameters for attribute transfers
**Tips and Tricks**

**Other Editing Toolbars**

**Spatial Adjustment Toolbar - Rubbersheeting**

- Adjustment is applied piecewise throughout the layer or selected features, rather than equally to all features as in the transformation methods.

Features are stretched and straight lines are preserved.

Features can be held in place with Identity Links.

After adjustment, all displacement links become Identity links.

Adjustment can be limited to a specified area or applied to the entire extents.
Tips and Tricks

Other Editing Toolbars

Spatial Adjustment Toolbar - Edge Snap/Edgematching

- uses Rubbersheeting methods to match features along edges of layers.

Match source layer to target layer or match to midpoints of links

Match is based on displacement links that can be added manually, from a file, or automatically by drawing a window around the features to be matched.

Edgematching can be enhanced by specifying common attributes between layers to use for matching.
Tips and Tricks

Other Editing Toolbars

Spatial Adjustment Toolbar - Attribute Transfer

Lets the user transfer attributes and geometry between features

- Indicate source and target layers or features
- Attribute transfer can be between features in the same layer or in different layers.
- Specify the fields to transfer
- Fields can be “mapped” between layers, as long as the data type is the same
Tips and Tricks

Other Editing Toolbars

Topology Toolbar and Map Topology

Map Topology - Limited topology created in ArcMap with ArcView or ArcEditor.

Works with Shapefiles as well as Geodatabase feature classes.

Cluster tolerance can be set.

Cannot use Geodatabase Topology Rules or set Ranks

Limited tools

ArcView – Topology Edit Tool & Show Shared Features

ArcEditor – Construct and Split Polygons
Tips and Tricks

Other Editing Toolbars

Map Topology Editing - Map Topology Geometry

Works with logical **edges** and logical **nodes**

Edges – shared parts of coincident lines or polygon boundaries.

Nodes – vertices at the end of an edge or where features intersect.

Hold down the “N” key to select nodes; “E” to select edges.

Right-click on the edge and select the appropriate options.
Tips and Tricks

Other Editing Toolbars

Topology Edit Tasks - tasks from the Editor Toolbar that work with map topology

Select shared features to edit with the Topology Edit tool

Reshape Edge – use Sketch tool to define how to reshape

Modify Edge – use the Topology Edit or normal Edit tool to move shared vertexes.
Tips and Tricks

Other Editing Toolbars

Cogo Toolbar - working with coordinate geometry in ArcMap
Tips and Tricks

Magnify and Viewer Windows – help see your edits

Magnifier Window

Viewer Window
Tips and Tricks

Bulk Editing

Integrate Tool - Data Management>Feature Classes>Integrate

Works out of an edit session, no undo - so work on copy of data
Tips and Tricks

Editing Attributes

Field Calculator – VB examples

Replace – Search and Replace
Field Calculator – VB examples

Split – breaks a text string and selects part of the string
Tips and Tricks

Editing Attributes

Field Calculator – VB examples

Trim – Remove leading spaces
Tips and Tricks
Editing Attributes

Field Calculator – VB examples

Compound Calculations\Converting numbers to string with &
More Help

ESRI Help and Resource Center

ESRI web-based training

Free Editing Module

“Editing Tips and Tricks” PowerPoint at www.junipergis.com

Not updated for 10, but most information will be applicable

Covers a lot of the more obscure editing tools