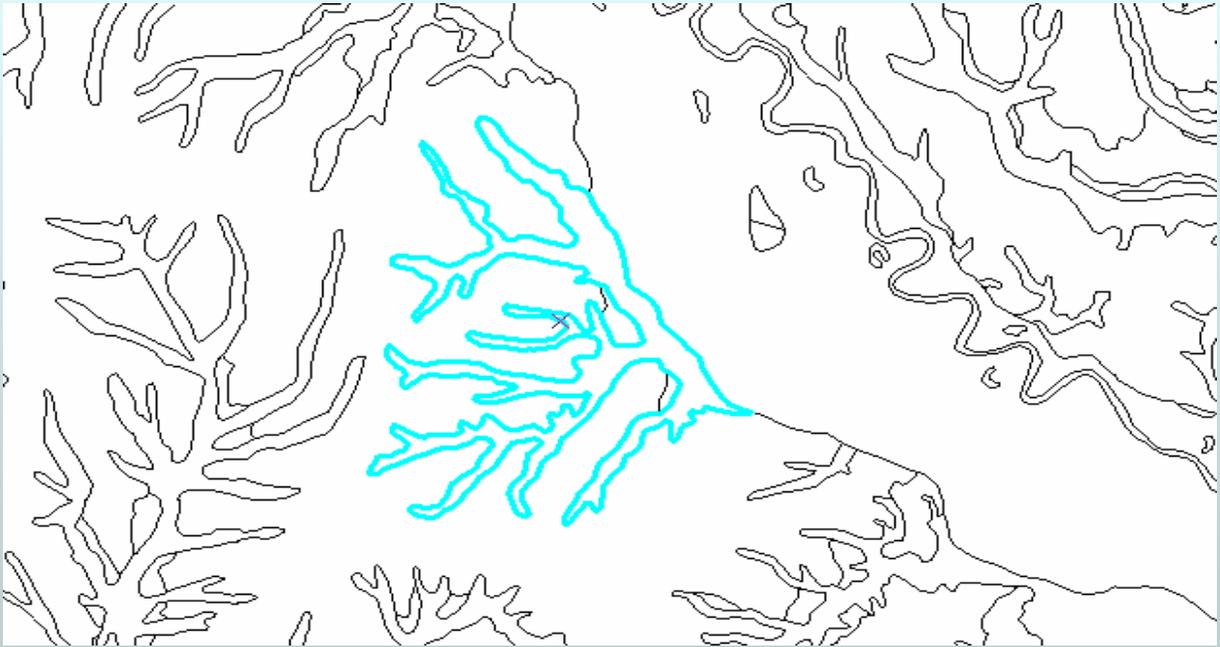
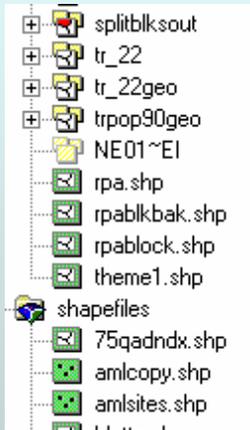


# Lesson 8

## Editing in ArcMap



# Editable data formats –



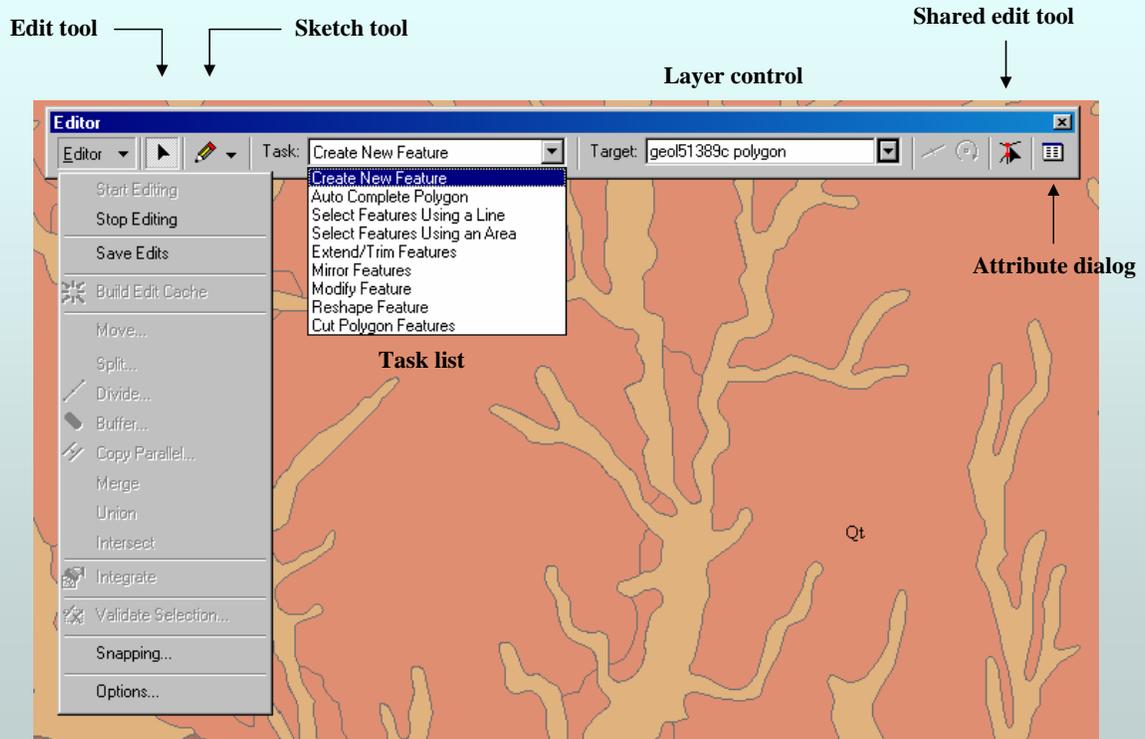
- **ArcMap allows you to edit all of the ArcInfo vector formats, coverages, shapefiles and geodatabases.**



## **Editable data formats**

ArcMap allows you to edit all of the ArcInfo vector formats, coverages, shapefiles and geodatabases.

# The Editor Toolbar



## The Editor Toolbar

- Editor pulldown menu:** This menu contains the commands for beginning, ending, and saving edit sessions. It also provides access to several editing operations, snapping controls and editing options.
- Edit tool:** This tool is used to select features for editing.
- Sketch tool:** this is the primary tool for editing spatial features. It allows you to digitize in new features or modify the shape of existing features. The actual operation the tool will perform is controlled by the Task list.
- Task list:** Choose the desired editing function from this list. The listed tasks will change according to which feature class you are editing.
- Layer control:** Allows you to select the layer you want to edit.
- Shared edit tool:** Like the standard edit tool, this tool is used for selecting features to edit, but the Shared edit tool also selects coincident features as well. Used for editing coverage data.
- Attribute dialog:** This window allows you to edit the attribute value of selected features.

# Managing Edit Sessions

## Starting a session

- Only one frame at a time



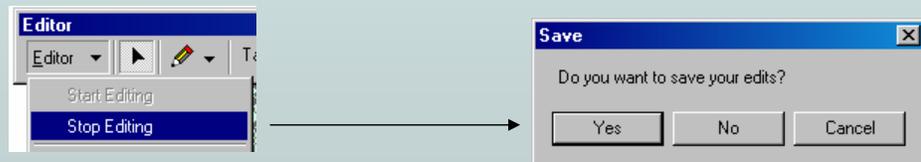
## Saving edits

-During the edit session

-At the end of the edit session



## Ending a session



## Managing Edit Sessions

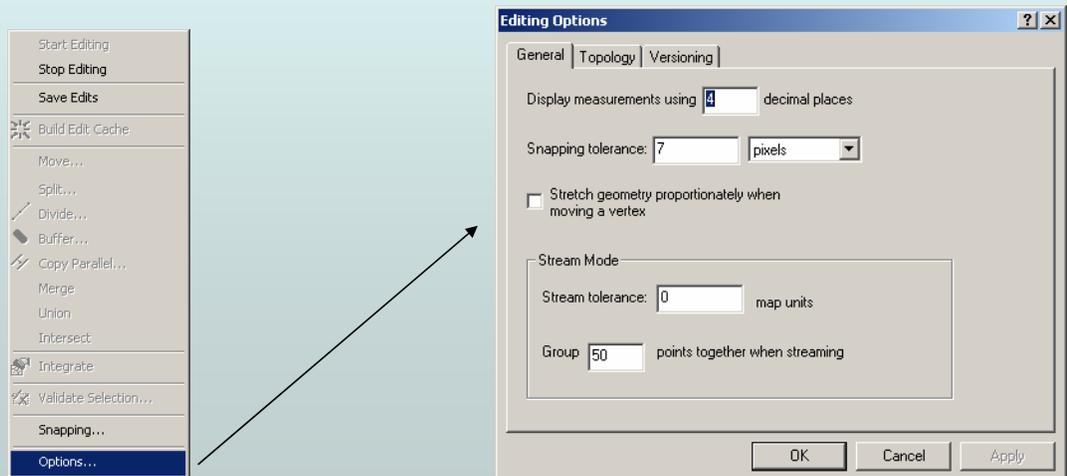
When using ArcMap, you will begin, end and save edit sessions using the Editor menu on the Editor toolbar. You may have only one edit session open per data frame, but you can open multiple data frames open if you wish to have more than one concurrent edit session running.

ArcMap will prompt you to save your edits on exiting. If you do not save your edits, your edits will not be committed back to the save layer.

# Snapping

- Automatically moves the position of the pointer to the location or orientation of a feature within a given tolerance

- Snapping tolerance can be set in map units or pixels



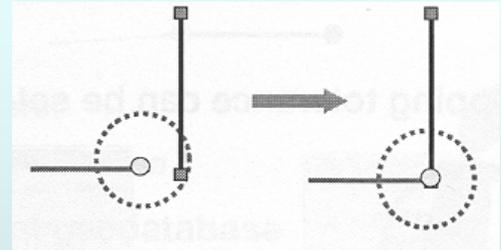
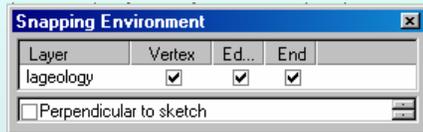
## Snapping

- Snapping automatically moves your pointer to the line or point you wish to connect to we the pointer is within a specified distance of that feature. This prevents you from having to move to the exact location of a feature in order to edit that feature.
- Snapping tolerance is the distance the pointer must be to a feature before it snaps to that location.

# Using Snapping

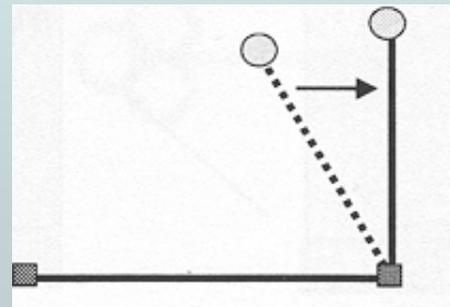
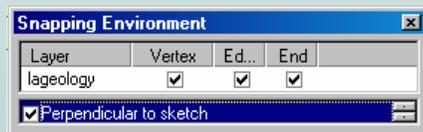
## •Layer snapping

- Snap to another feature's edge, vertex or endpoint



## •Sketch snapping

- Snap to a location perpendicular to the previous sketch segment



## Using Snapping

There are two general types of snapping in ArcMap.

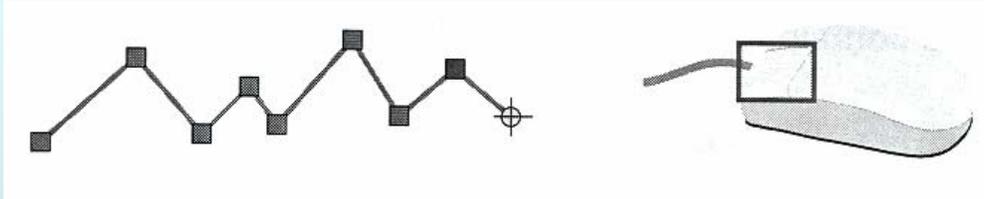
•Layer Snapping: Moves your pointer to the location of a feature's edge, vertex or endpoint. You can turn snapping off or on for each of these options using the Snapping Environment window.

•Sketch snapping: When adding a sketch, this option will snap your pointer to a location perpendicular to the previous sketch segment. The snapping can be overridden if you move your pointer far enough.

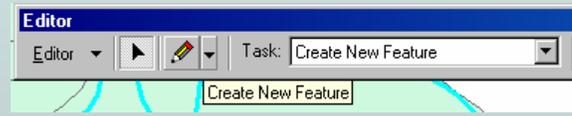
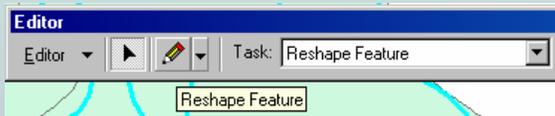
You may need to adjust the default snapping distance to fit your needs through trial and error.

## Using the Sketch tool

- Left mouse button adds vertices or points



- Sketch tool options change depending on the feature class being edited



### Using the Sketch tool

- The left mouse button adds vertices or points.
- The sketch tool options change depending on the feature class being edited

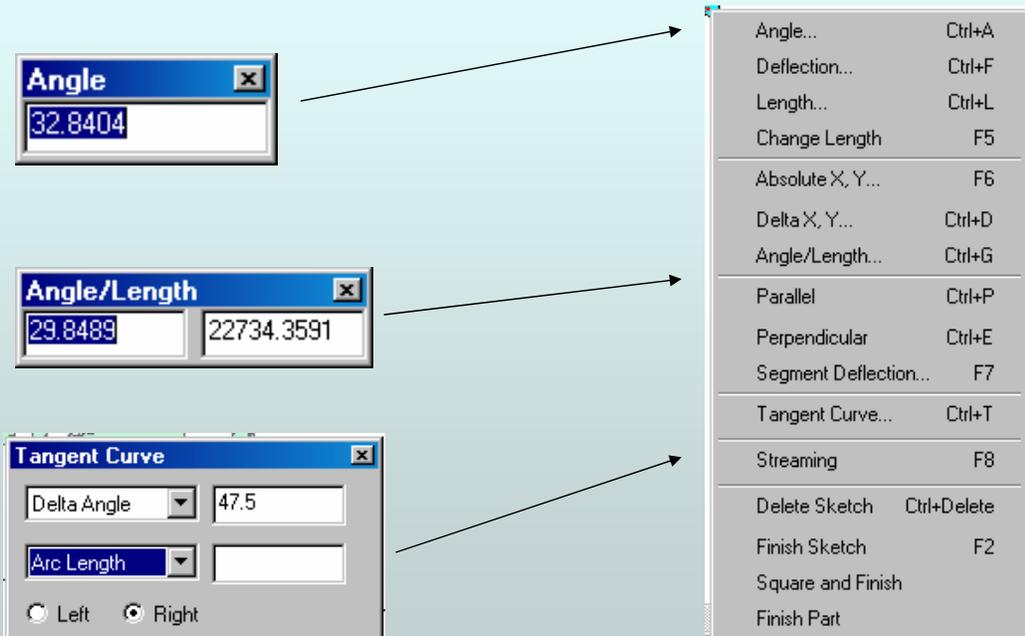
The sketch tool is the primary editing tool in ArcMap. It allows you to add new features by digitizing or to modify existing features by performing an editing task from the edit task list.

The name of the sketch tool changes to reflect the chosen task from the task list.

The left mouse button adds features, the right button brings up the Sketch tool context menu.

## The sketch tool context menu

•Right mouse button reveals the context menu which contains additional editing tools

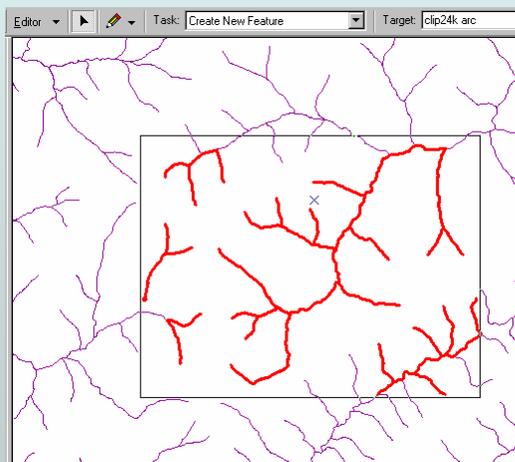
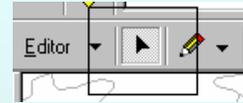


### The Sketch tool context menu

The Sketch tool context menu contains a number of tools used to edit sketches interactively. While editing a sketch, you can access this menu to add segments of a specific length or angle, or to delete the sketch and start over.

# Selecting features

- **Interactive selection**
- **Selection menu: Attribute, by location**
- **Choice of selectable layers**



## Selecting Features

Arcmap provides several methods for feature selection, including:

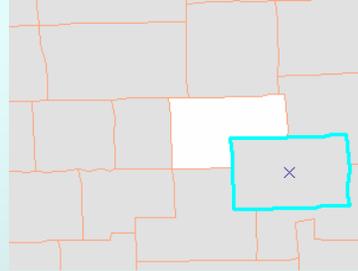
1. **Interactive selection:** Selecting features by pointing or by drawing a shape (box, line or area)
2. **Attribute:** Selecting by attribute values
3. **Location:** Selecting using features according to their spatial relationship to features in other layers.

You can select which layers are available for editing by using the Selection menu

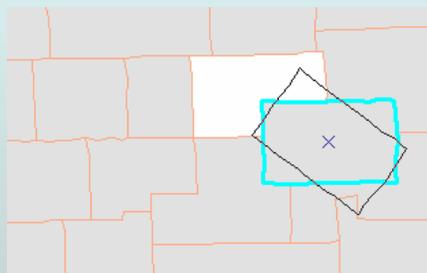
# Editing functions

- Moving

- Click and drag
- Delta x,y coordinates



- Rotating



- Others

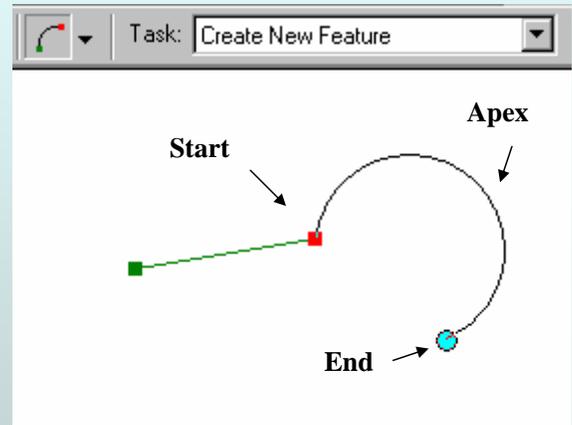


## Editing functions

ArcMap contains several simple functions for editing spatial features. You can select features and move them by dragging or by using discrete coordinates. Features can also be rotated interactively around their selection anchor. The anchor can be moved anywhere on the page to achieve the desired result.

# Arc tool

- Arc tool adds true curves
  - Calculates geometry (radius, angle, etc.)
  - Not just multiple straight segments
- Based on three points
  - Start point
  - A point the curve passes through
  - End point



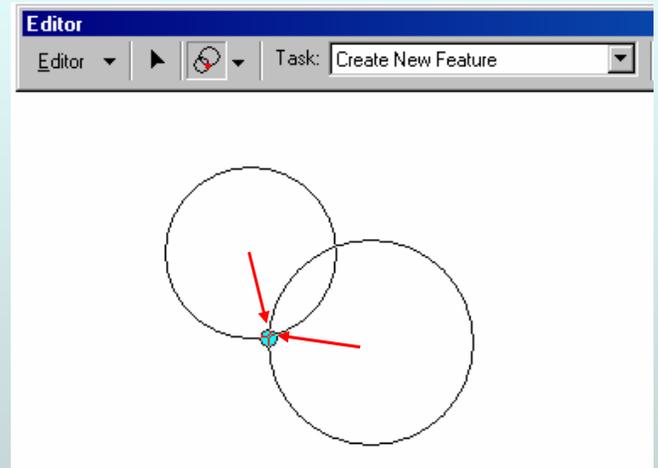
## Creating True curves

ArcMap allows you to create true curves with the arc tool. In ArcInfo the term arc refers to a straight or curving line composed of many line segments. The ArcMap Arc tool allows you to create true curves based on chord geometry. This can have an impact on measuring the perimeter and area of polygon features.

While true curves are displayed using straight line segments, the curve geometry will still be used for internal calculations.

# Distance-Distance tool

- Adds a vertex at given distances from two points
- Creates circles that intersect in two places
- Origin points are the circle center
- Specify exact distance by specifying diameter or radius



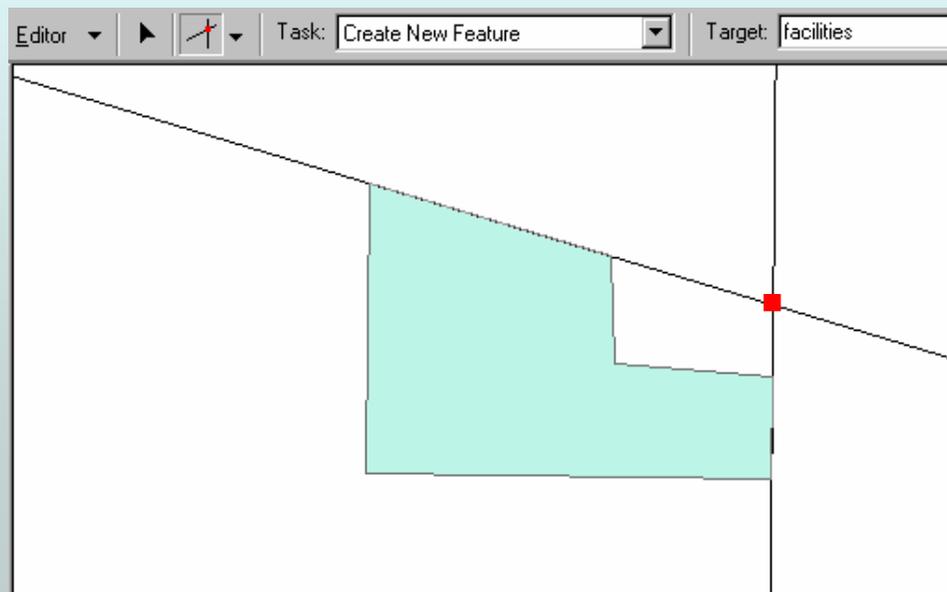
## Distance-Distance tool

The Distance-Distance tool is useful if, for example you have field measurements describing the location of a point based on the distance from two known points.

The Distance-Distance tool allows you to create a point or vertex at the intersection of two distances from two other points.

# Intersection tool

- Adds a vertex at the implied intersection of two line segments
- Lines can be projected from any line or polygon in a view to any point, line or polygon coverage in the same view

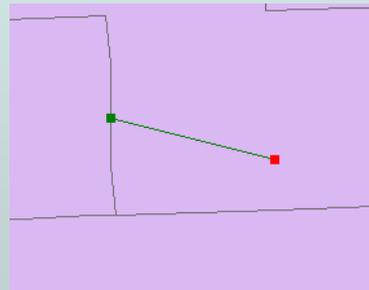
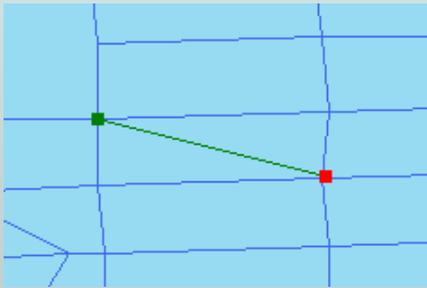


## Intersection tool

The Intersection tool allows you to create a point or vertex at the implied intersection of two line segments. The intersection tool creates a point or vertex at the place where two line segments would intersect if they were extended.

# Shared edit tool

- **Selects shared or coincident features**
- **Use in coverage editing**

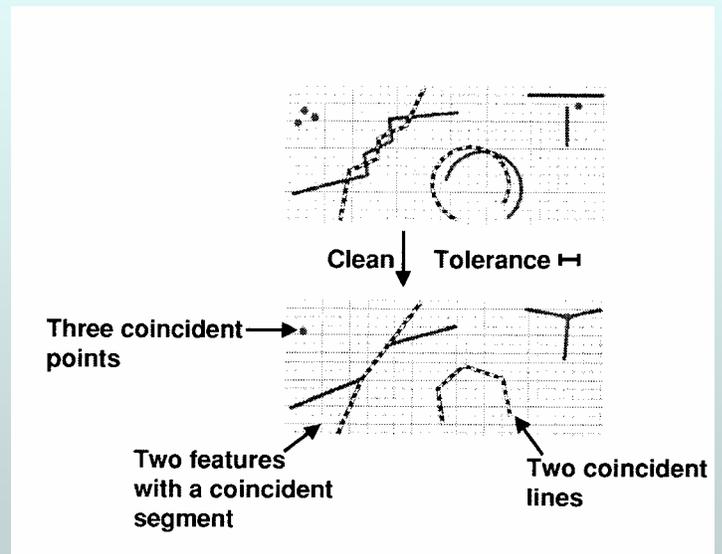


## Shared edit tool

The Shared edit tool selects vertices or boundaries that are shared between two or more features. For example if you have a municipal boundary based on a stream channel, you can move the stream boundary and the municipal boundary will be moved at the same time. When you select with the shared edit tool, only the feature in the top layer will be highlighted, but every feature in the datasets below that is coincident will be selected as well. This is true even for feature classes that are not visible.

# Integrate tool

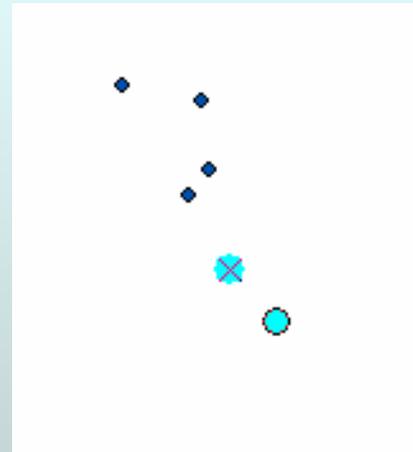
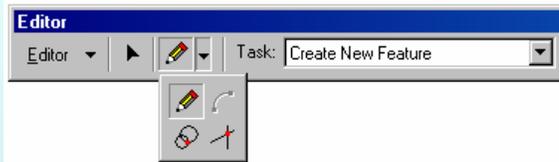
- Creates coincident geometry
- Uses cluster tolerance
  - The minimum distance between coordinates
- Does not intersect features



## Integrate tool

The clean tool checks your data for the proper topology. In other words, the clean tool makes sure that features with parts that should be shared are shared. The Clean command checks all feature classes in your feature dataset and makes any boundaries or vertices within a certain distance, (the cluster tolerance you set) coincident. The clean tool will not merge or split features.

# Adding points



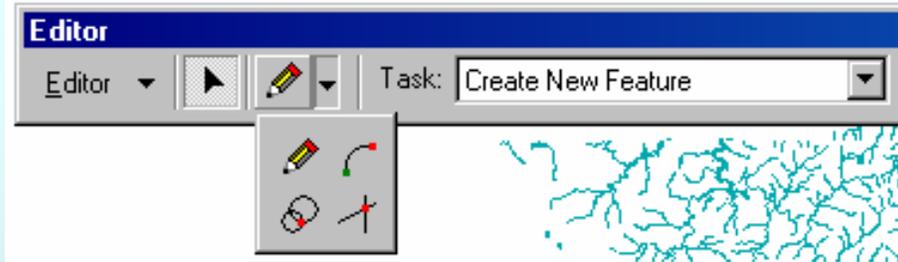
- **Tools**
  - **Sketch tool**
  - **Distance-distance tool**
  - **Intersection tool**



## Adding points

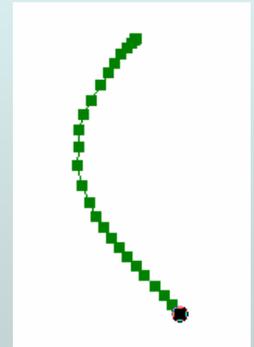
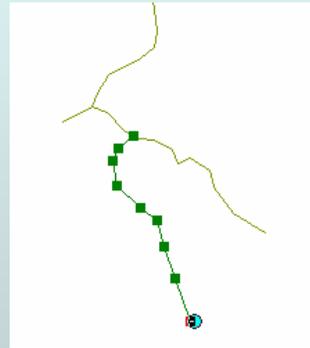
Points and vertices can be added to a sketch using the sketch tool, the Distance-distance tool or the Intersection tool.

## Adding arcs



- **Tools**

- Sketch tool
- Distance-distance tool
- Intersection tool
- Arc tool



- Sketch tool can be used in discrete or streaming modes

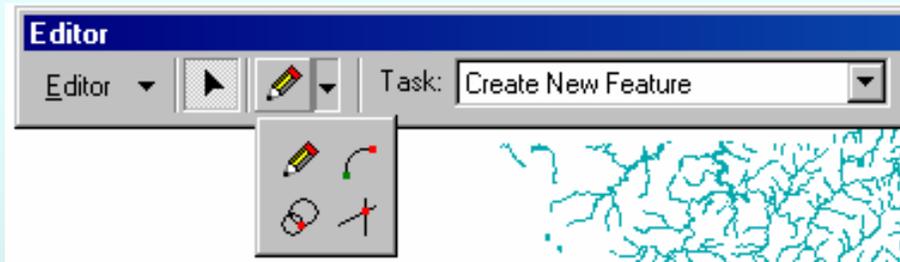


### Adding arcs and polygons

Arcs can be added to a sketch using the sketch tool, the Distance-distance tool, the Intersection tool, or the Arc tool.

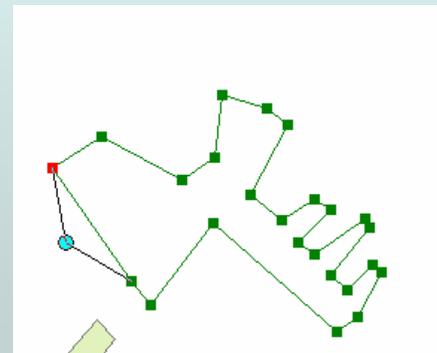
The Sketch tool can be used in either discrete or streaming modes.

## Adding polygons



- **Tools**

- Sketch tool
- Distance-distance tool
- Intersection tool
- Arc tool



**Snapping tolerance can be set  
in map units or pixels**



## Editing attribute data for selected features

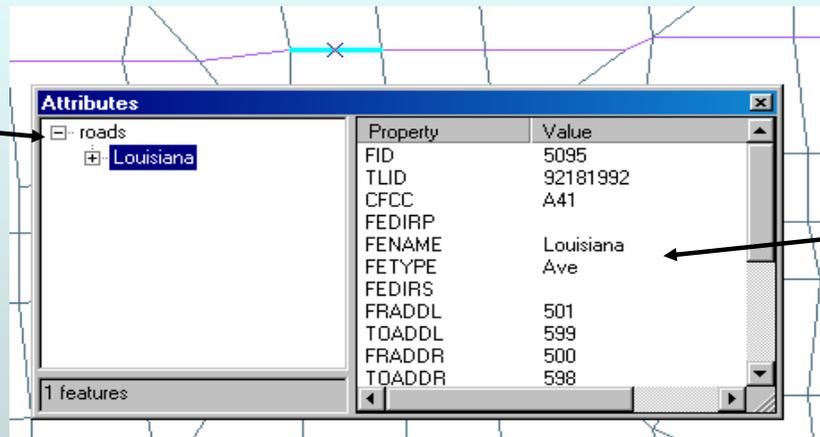
- Attribute dialog allows viewing and editing of selected feature attributes



Selected feature layer name

Click to highlight selected feature

Right-click to zoom to selected feature



Attribute values

- Add, or copy/cut and paste values for single or multiple selected features



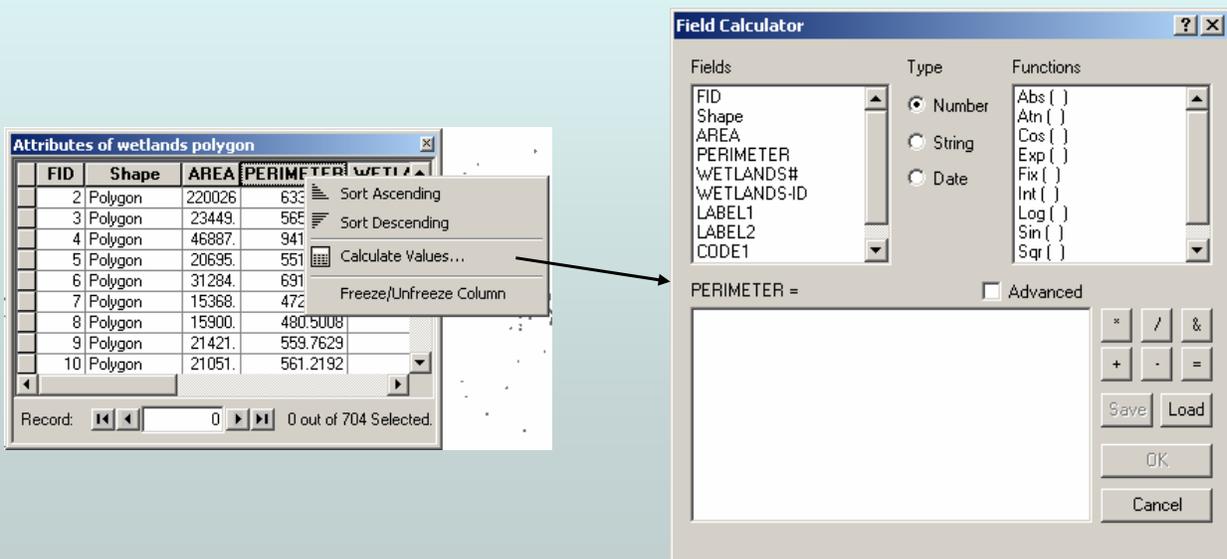
### Editing attribute data for selected features

You can view the attributes of selected features in the attributes dialog box. The list of selected features is shown on the left side of the window. The features are listed by their unique ID numbers and grouped by layer name. The right side contains two columns, the attributes properties of the layer you are viewing, and the values of those attribute properties.

You can copy individual attributes or all the attributes of a feature. Attributes can be pasted to a single feature, or to all selected features in a layer. TO copy an attribute value to a layer, copy the value and right-click on the layer name. Click Paste and the attribute value is copied to every selected feature in the layer. You can cut and paste attributes just like you copy and paste attributes by choosing Cut from the context menu. Cut removes the attribute value you are copying from the Attributes dialog box.

## Editing tables using the field calculator

- Calculate field values for an open table
- Simple calculations or advanced functions
- Must start an edit session first



### Editing tables using the field calculator

By using the Field Calculator, you can edit attribute values directly on the attribute table. You must have an edit session open, and the layer must be editable. To open the Field Calculator, right-click the field you want to edit values for. The calculator menu allows you to perform simple calculations, and evaluate complex logical expressions which include other fields in the table.

# Exercise 8a

## Editing in ArcMap



### **Editing tables using the field calculator**

By using the Field Calculator, you can edit attribute values directly on the attribute table. You must have an edit session open, and the layer must be editable. To open the Field Calculator, right-click the field you want to edit values for. The calculator menu allows you to perform simple calculations, and evaluate complex logical expressions which include other fields in the table.

# Exercise 8b

## Heads Up Digitizing



### **Editing tables using the field calculator**

By using the Field Calculator, you can edit attribute values directly on the attribute table. You must have an edit session open, and the layer must be editable. To open the Field Calculator, right-click the field you want to edit values for. The calculator menu allows you to perform simple calculations, and evaluate complex logical expressions which include other fields in the table.