

ArcGis· 9

Geodatabase *QuickStart* Tutorial – 7th part

Exercise 10: Creating and editing annotation

Annotation is a way to store text to place on your maps. With annotation, each piece of text stores its own position, text string, and display properties. Dynamic labels, based on one or more attributes of features, are the other primary option for placing text on maps. If the exact position of each piece of text is important to you, then you should store your text as annotation. ArcGIS fully supports two types of annotation: geodatabase annotation and map document annotation. ArcGIS also supports the display and conversion of other annotation types including ArcInfo coverage annotation and CAD annotation.

In this exercise you will convert some labels into geodatabase annotation, place some unplaced annotation features, and edit some annotation features.

Opening the exercise document

1. Start ArcMap.
2. Click File and click Open. Navigate to and open the EditingAnno.mxd map document located in the Editor folder where you installed the tutorial data (C:\ArcGIS\ArcTutor is the default location).

This map shows roads and water features in Zion National Park. Each feature layer has dynamic labels, and the Streams, Major Roads, and Water Points layers have label classes based on the layers' symbology. Label classes let you create different labels for different types of features in a given layer, so, for example, intermittent streams can be given smaller labels than perennial streams.

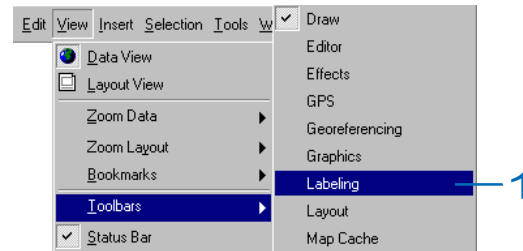
Suppose you need to create an 8.5 x 11 inch map that shows the named streams within the park. It is more

important to get the perennial streams labeled than the intermittent ones, but your objective is to include as many stream names as possible for the park area.

Viewing unplaced labels

Some of the streams could not be labeled, due to space constraints on the map. You'll add the Labeling toolbar and view the unplaced labels.

1. Click View, point to Toolbars, and click Labeling.



2. Click the View Unplaced Labels button.



The labels that could not be placed are displayed in red.



It might be possible to fit these labels by adjusting the size of the labels, changing the feature and layer weights, or making the map larger. However, for this exercise you will convert the labels to annotation and place or delete the unplaced annotation.

3. Click the View Unplaced Labels button again, to hide the unplaced labels.

Next you'll prepare to convert the labels to annotation.

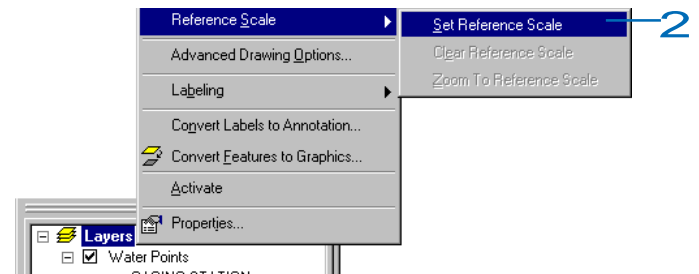
Setting a reference scale

Annotation features have a fixed position and size, so when you zoom in to the map they appear to get larger. Labels are dynamically drawn according to their layer's label properties. If the map does not have a reference scale they are drawn at their specified font size regardless of the map scale. To make labels behave more like annotation you can set a reference scale for the map. The labels will be drawn with their specified font size scaled relative to the reference scale. When converting labels to annotation you should specify a reference scale. If you do not, the current map scale will be used as the reference scale for the annotation.

1. Type "170000" in the Map Scale box and press the Enter key.



2. In the ArcMap table of contents, right-click Layers, point to Reference Scale, and click Set Reference Scale.



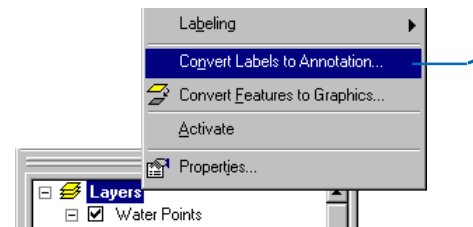
You can also view and change the reference scale for the data frame using the General tab of the Data Frame Properties dialog box.

Now if you zoom in or out, the labels will become correspondingly larger or smaller. You're ready to convert these labels to annotation.

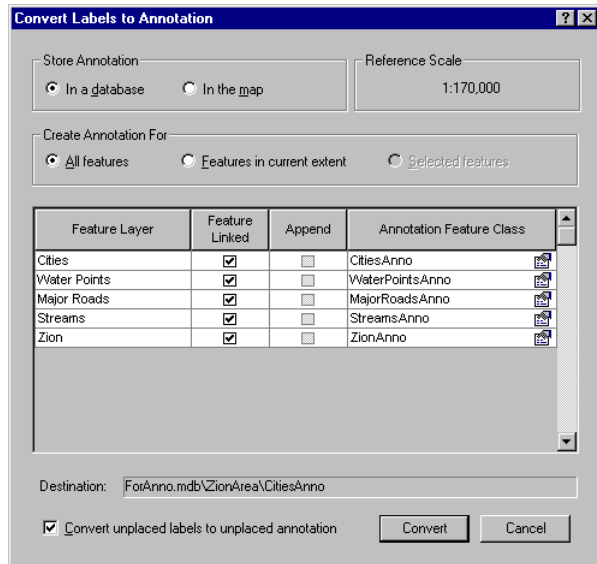
Converting labels to annotation

Annotation can be stored in a map document or in feature classes in a geodatabase. You will convert these labels into annotation stored in a geodatabase.

1. In the ArcMap table of contents, right-click Layers and click Convert Labels to Annotation.



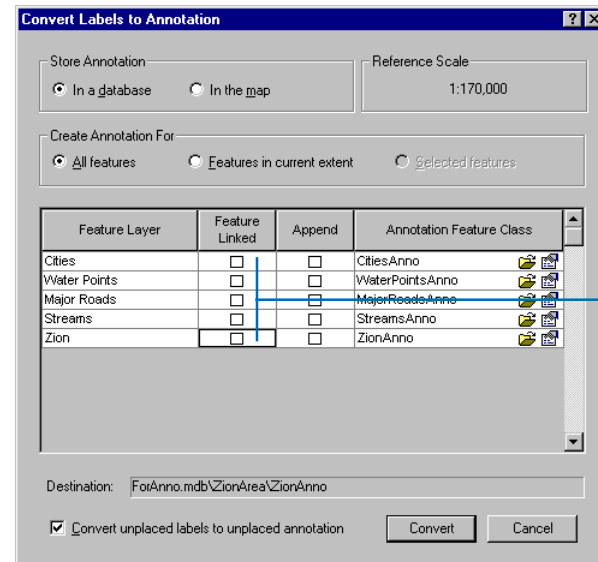
The Convert Labels to Annotation dialog box allows you to specify what kind of annotation to create from the labels, which features to create annotation for, and where the annotation will be stored.



Convert Labels to Annotation dialog box with an ArcEditor or ArcInfo license of ArcMap. Annotation will be feature-linked by default.

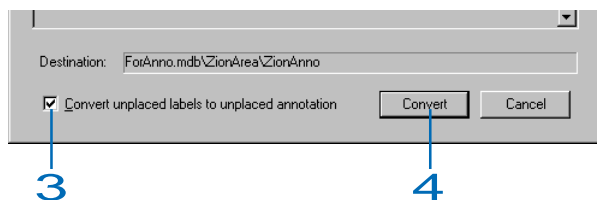
ArcView licensed seats of ArcMap can view feature-linked annotation, but they cannot create it or edit datasets that contain it, so if you have an ArcView license the Feature Linked column of check boxes will be unavailable. For more information about feature-linked annotation, see *Building a Geodatabase*. In this exercise you will create standard annotation features. Skip the next step if you have an ArcView license.

2. Uncheck the check boxes in the Feature Linked column.



Small folder icons, the Browse buttons, appear beside the annotation feature class names as you uncheck the Feature Linked check boxes. Feature-linked annotation must be stored with the feature class that it is related to in the geodatabase. Standard annotation feature classes can be stored in other geodatabases, so after unchecking the boxes you have the option to specify a new location for your annotation. Standard annotation feature classes will be stored in the same dataset as their source feature class by default. If a feature layer on the map was based on a shapefile or coverage feature class, the Browse button would have been visible and you would need to browse to a geodatabase to store the new annotation feature class.

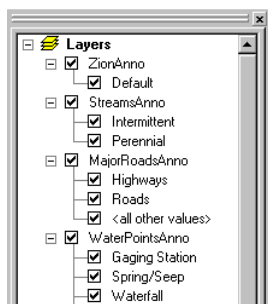
3. Verify that the box to Convert unplaced labels to unplaced annotation is checked.



This will give you a chance to manually place the annotation for the features that could not be labeled.

4. Click Convert.

The labels are converted to annotation. The process should take less than a minute to finish, though the speed will depend on your computer. When the annotation feature classes are created, they are added to ArcMap.



If you do this exercise with an ArcEditor or ArcInfo licensed seat of ArcMap, each layer's label classes will be stored as separate annotation classes within a single annotation feature class. For example, the two label classes

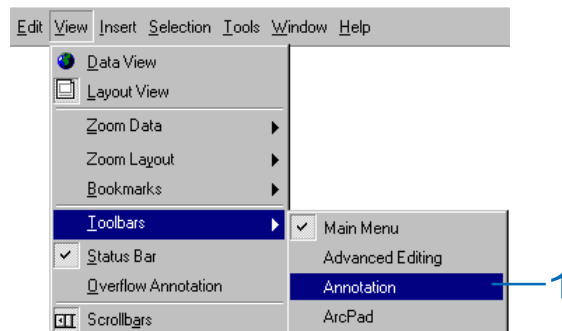
for streams will become two annotation classes, called Intermittent and Perennial, within the StreamsAnno annotation feature class. These annotation classes can be turned on and off independently, and they can have their own visible scale ranges. Annotation with multiple annotation classes can be viewed but not edited in ArcView.

If you do this exercise with an ArcView licensed seat of ArcMap, each layer's labels will be converted into a single annotation class, regardless of the number of label classes the layer has. If a layer has multiple label classes with different text symbols, each text symbol from the label classes will be available when you edit the features in the annotation class.

Preparing to place unplaced annotation

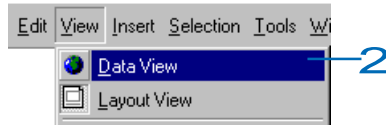
Now that the labels have been created, you will add the Editor and Annotation toolbars, switch to data view in ArcMap, and start an edit session.

1. If the Annotation toolbar is not visible, click View, point to Toolbars, and click Annotation. If the Editor toolbar is not visible, add it using the same method.



While you can edit in layout view, the display performance is better in data view.

2. Click View and click Data View.



3. Click Editor and click Start Editing.



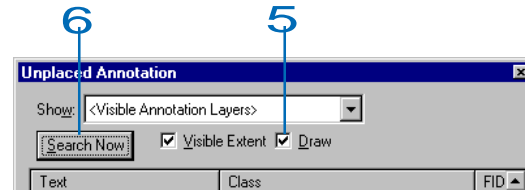
4. Click the Unplaced Annotation Window button on the Annotation toolbar.



The Unplaced Annotation Window appears. You can resize it, dock it to the ArcMap window, or leave it floating.

The Unplaced Annotation Window lets you view unplaced annotation features in a table that can show all of the unplaced annotation in the annotation feature classes on your map. You can filter the table to show annotation for a specific annotation class and choose whether to show annotation for the whole extent of the data or for the current visible extent. You can sort the table alphabetically by the unplaced annotation's text content or annotation class by clicking the Text or Class column headings.

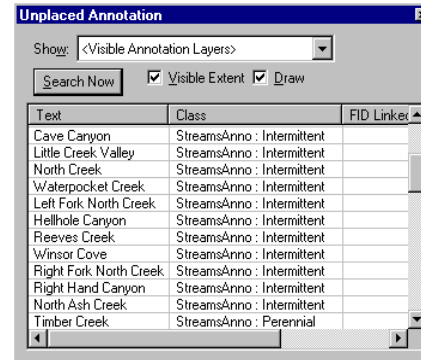
5. Check the Draw check box.



The Draw check box lets you view the unplaced annotation features on the map.

6. Click Search Now.

A number of annotation features are listed in the table. If you scroll down the table you can see that there are unplaced annotation features from several annotation classes represented.

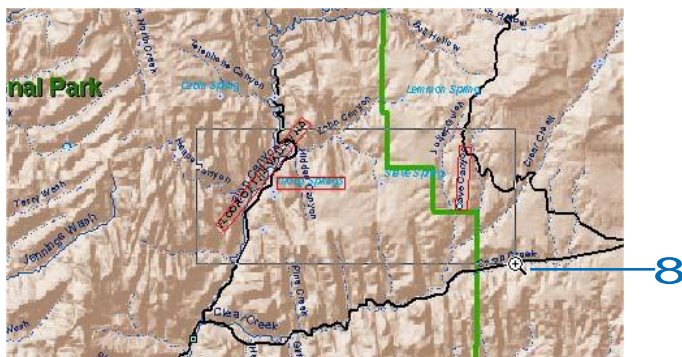


You can also see some new annotation features outlined in red on the map. You see these unplaced annotation features because the Draw check box is checked.

- Click the Edit Annotation tool.



- Click on the map, press and hold the Z key, and click and drag a box around the small cluster of unplaced annotation features at the east side of the park.



The Z key is the editing shortcut key to zoom in.

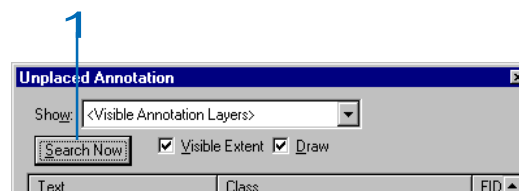
The Hillshade background layer has a visible scale range, so when you zoom in closer than 1:85,000 it is no longer displayed. Setting a visible scale range is also a good idea for annotation feature classes, as they are most useful within the range of scales where they are legible. There is no need to spend time or—especially for multiuser geodatabases—network and database resources drawing annotation features when they cannot be read. You can set a visible scale range for a layer in ArcMap, or you can change the properties of the annotation feature class itself

in ArcCatalog. The second method has the advantage that the annotation feature class will always be drawn within its visible scale range when it is added to a map.

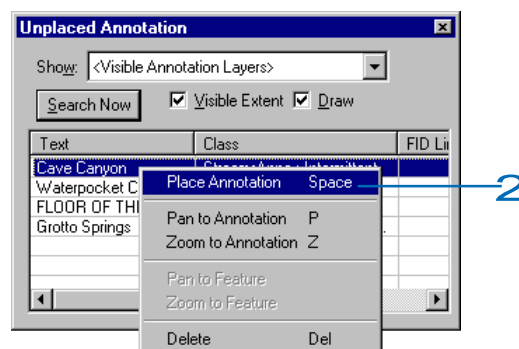
Placing an unplaced annotation feature

Now that you've zoomed in to the cluster of unplaced annotation in the east side of the park, you're ready to start placing the unplaced annotation features.

- Click Search Now.



- Right-click Cave Canyon in the Text column and click Place Annotation.



The Cave Canyon annotation feature is placed. It is selected, so it has a blue outline instead of a red outline.

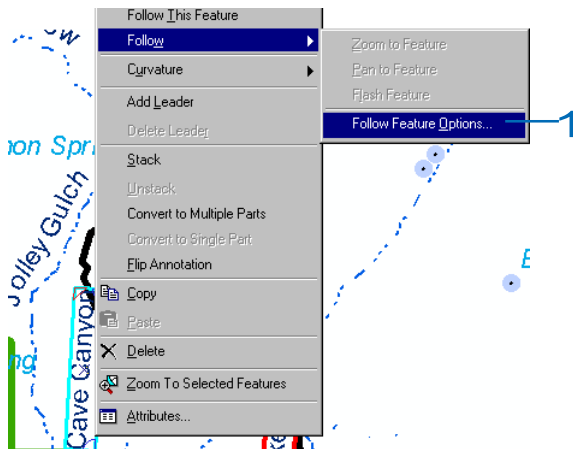
The annotation feature is straight and placed parallel to a segment of the stream feature. The other stream annotation features curve to follow the streams, so you will make this newly placed annotation feature follow the stream.

Following a feature

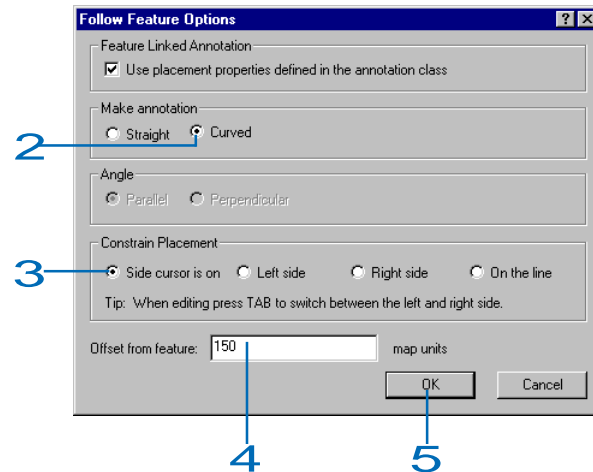
You can make an annotation feature follow a line feature or the boundary of a polygon feature. The Follow Feature Options dialog box allows you to specify how annotation will behave when it follows a feature.

1. Right-click the Cave Canyon annotation feature, point to Follow, and click Follow Feature Options.

The Follow Feature Options dialog box appears.

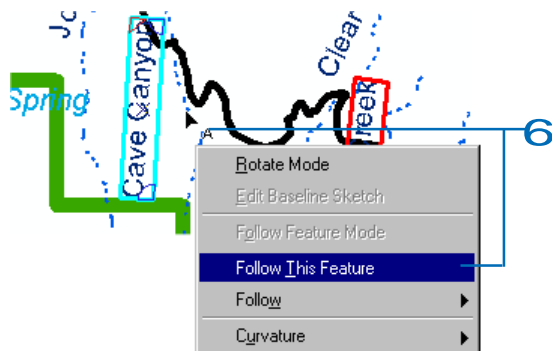


2. Click Curved.



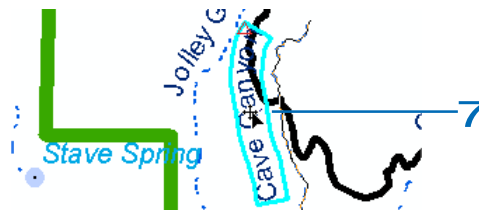
3. Click the Side cursor is on button to constrain the placement of the annotation.
4. Type "150" in the Offset from feature text box. The annotation will be offset 150 meters from the stream.
5. Click OK.

6. Move the pointer over the stream feature just east of the Cave Canyon annotation feature. With the pointer slightly to the left of the stream, right-click and click Follow This Feature.

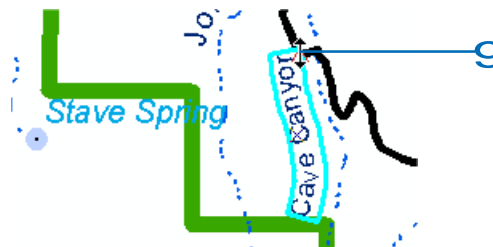


The stream feature will flash, and the annotation feature will bend to follow the stream. If you click too near the road feature, the annotation may follow the road. While the Cave Canyon annotation feature is still selected you can fix this by repeating the last step. The selected annotation feature will follow any line feature that you right-click and tell it to follow using the Edit Annotation tool.

7. Place the pointer over the middle of the Cave Canyon annotation feature. The pointer will change to the four-pointed Move Annotation pointer.



8. Click and drag the Cave Canyon annotation feature along the stream feature until it is between the park boundary and the road. It will slightly overlap each of these features. Press the L key as you drag the annotation to flip its reading direction.



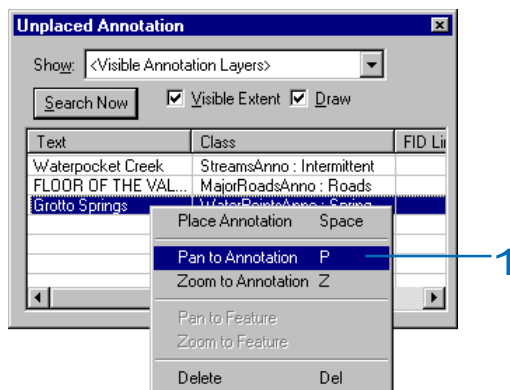
9. Place the pointer over the red triangle on the edge of the Cave Canyon annotation feature. The pointer will change to the two-pointed Resize Annotation pointer.
10. Click and drag the resize handle toward the middle of the annotation feature. The feature will shrink as you drag it. Resize the feature until it fits between the park boundary and the road.

You've placed an annotation feature, made it follow another feature, and resized it with the Edit Annotation tool. The Edit Annotation tool also allows you to make other edits to annotation features.

Stacking and rotating annotation

Now that you've placed the annotation feature from the StreamsAnno feature class, you'll place the other nearby annotation features.

1. In the Unplaced Annotation window, right-click Grotto Springs and click Pan to Annotation.

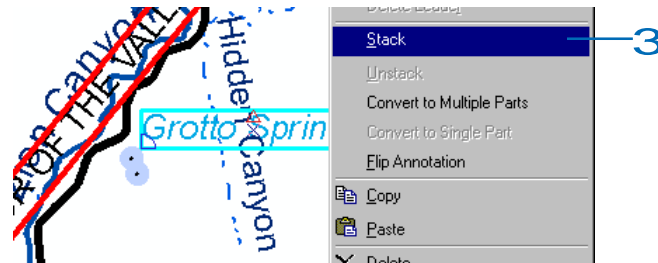


2. Press the Spacebar.

The Grotto Springs annotation feature is placed.

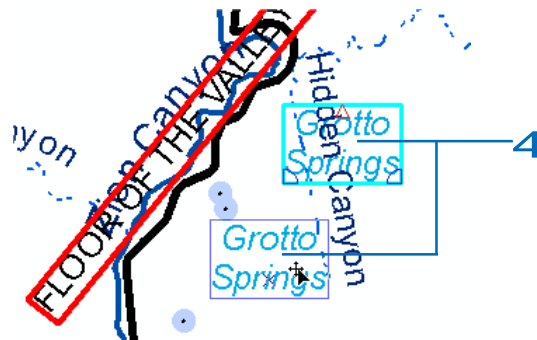
The Spacebar is the Unplaced Annotation window shortcut key to place a selected annotation feature.

3. Right-click the map and click Stack.

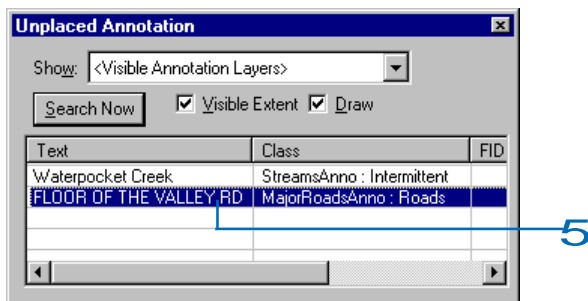


The Grotto Springs annotation feature is split at the space in the text, and the word Grotto is placed above the word Springs.

4. Move the pointer over the middle of the Grotto Springs annotation feature. The pointer will change to the four-pointed Move Annotation pointer. Click the middle of the Grotto Springs annotation feature and drag it to the southwest, so it does not cover the Hidden Canyon annotation feature.

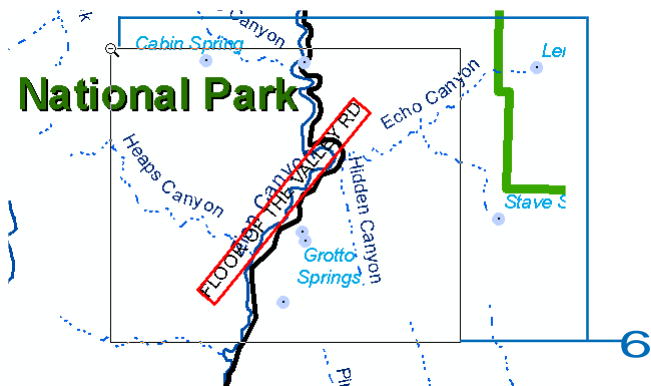


- In the Unplaced Annotation window, click FLOOR OF THE VALLEY RD, and press the P key.



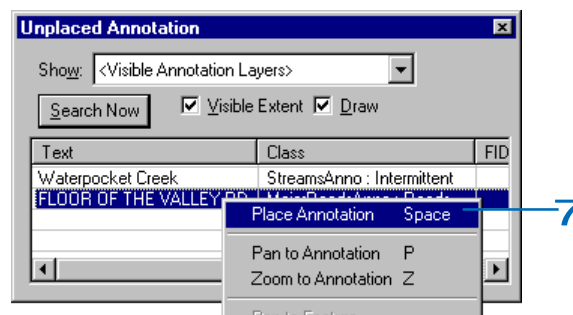
The P key is the Unplaced Annotation window shortcut key to pan to a selected annotation feature.

- Click the map, press and hold the X key, and click and drag a box around the unplaced FLOOR OF THE VALLEY RD annotation feature.



The X key is the editing shortcut key to zoom out.

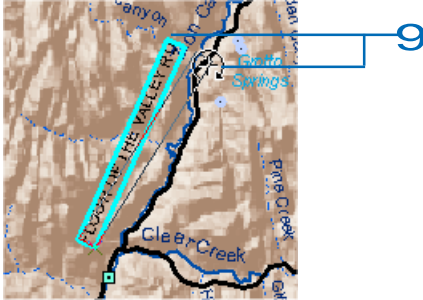
- Right-click FLOOR OF THE VALLEY RD and click Place Annotation.



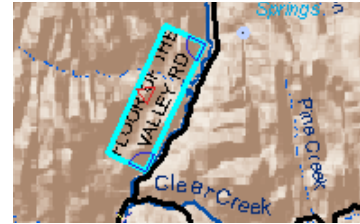
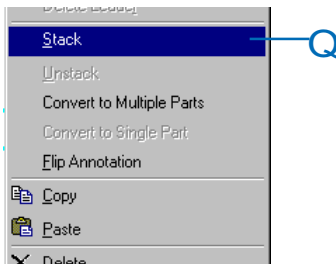
- Click the middle of the FLOOR OF THE VALLEY RD annotation feature with the four-pointed Move Annotation pointer, and drag it to the southwest, until the south end of the annotation feature is near the intersection of Floor of the Valley Rd and the road that branches off to the east, State Highway 9.



9. Move the pointer over the blue, wedge-shaped rotate handle on the northeast corner of the FLOOR OF THE VALLEY RD annotation feature until the pointer becomes the Rotate pointer. Click the corner and drag it counter-clockwise until the annotation feature follows the general trend of the road.



10. Right-click the FLOOR OF THE VALLEY RD annotation feature and click Stack.

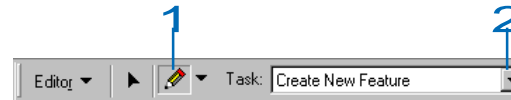


You've placed, moved, stacked, and rotated annotation features with the Edit Annotation tool. Next you'll create new annotation and delete annotation.

Creating and deleting annotation

Suppose you decide that the intersection of Floor of the Valley Rd and State Highway 9 is inadequately annotated. You'll create a new annotation feature for State Highway 9 and place it near the intersection.

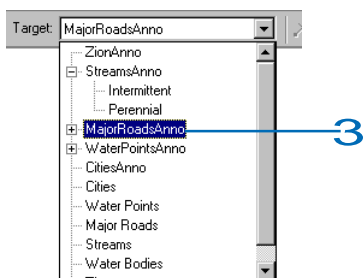
1. On the Editor toolbar, click the Sketch tool.



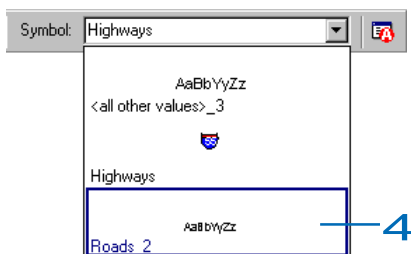
When the Edit Annotation tool is active, you can press the E key to quickly switch between Sketch, Edit, and Edit Annotation tools.

2. Verify that the Task dropdown list says Create New Feature. If necessary, click the dropdown arrow and click Create New Feature.

- Click the Target dropdown list and point to MajorRoadsAnno. If you are using an ArcEditor or ArcInfo license, you will have the option to choose an annotation class. Click the plus sign to expand MajorRoadsAnno and click Roads. If you are using an ArcView license, click MajorRoadsAnno.



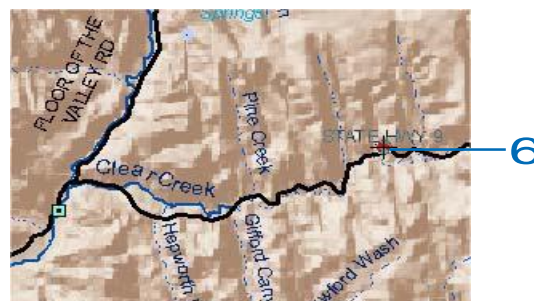
- If you are using an ArcView license, click the Symbol dropdown list on the Annotation toolbar and click the Roads 2 symbol. If you are using an ArcEditor or ArcInfo license, the symbol will have switched to Roads 2 when you made the Roads annotation class the target for your edits.



- Press the Esc key to return focus to the Sketch tool.

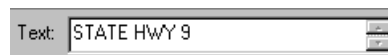
When you use click the dropdown lists the Sketch tool loses focus. Pressing the Esc key returns focus to the tool so the shortcut key you will use in the next step will work.

- Move the pointer over the road feature that branches off to the east from the intersection with Floor of the Valley Rd. Press Ctrl+W.

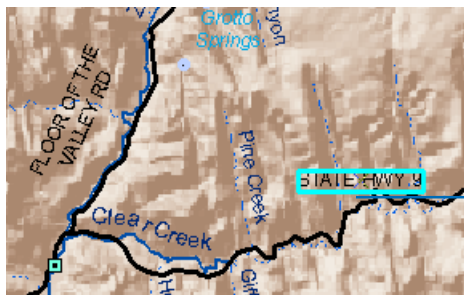


The Ctrl+W shortcut takes the label expression of the first visible and selectable feature that you are pointing at and adds it to the Text box on the Annotation toolbar. When you use Ctrl+W while editing a feature-linked annotation class, it uses the expression of the annotation class to derive the text and will only derive the text from a feature in the linked feature class.

The Text box on the Annotation toolbar should say STATE HWY 9. If it says ZION NATIONAL PARK or Clear Creek, move the pointer over the road feature and press Ctrl+W again.



7. Click above the road to place the new annotation feature.



Because the construction method was Horizontal, one click placed the annotation feature.

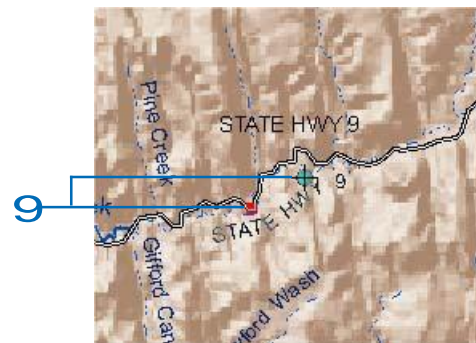
The pointer is still in Construct feature mode, and it says STATE HWY 9. If you needed to annotate more features, you could click somewhere else on the map to add another piece of annotation with the same text, or you could move the pointer over another feature and press Ctrl+W to pick up new text from its label expression. You could also type new text directly into the Text box on the Annotation toolbar. In Construct feature mode the A key is a shortcut that lets you set the focus to the Text box, so you can type new text without having to click in the box.

Most of the road annotation follows the road features. You'll use a different construction method to create a new annotation feature that follows the road.

8. Click the Construction dropdown list and click Follow Feature.

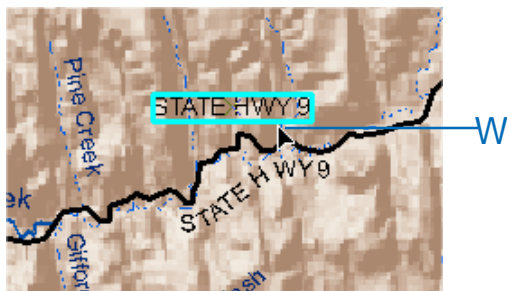


9. Click the road feature, then move the pointer along the road. The road should be highlighted, and the annotation feature should move along the road as you move the pointer. Click again to finish the annotation sketch.



10. Press the E key to switch to the Edit tool pointer.

11. Click the horizontal STATE HWY 9 annotation feature that you created and press the Delete key.



The horizontal annotation feature is deleted.

You could continue to place the unplaced annotation, edit annotation, create new annotation features, and delete unwanted annotation until the map suits your needs. This annotation is stored in geodatabase annotation feature classes, each of which can be reused on other maps.

12. Click Editor and click Save Edits, then click Editor and click Stop Editing.

In this exercise you created annotation from labels with multiple label classes, placed annotation features derived from labels that did not fit on the map, stacked and rotated annotation using the Edit Annotation tool, resized annotation features, made existing and new annotation features follow a given linear feature, and set the text string for a new annotation feature.

To learn more about editing annotation features see ‘Editing annotation’ in *Editing in ArcMap*. To learn more about managing and creating geodatabase annotation feature classes see ‘Managing annotation’ in *Building a Geodatabase*.

Labels can also be converted into annotation stored in a map document. Map document annotation consists of graphic and text elements rather than geodatabase features, so it is edited with the tools on the Draw toolbar. To learn more about managing and creating map document annotation, see ‘Working with graphics and text’ in *Using ArcMap*.

In the first two exercises, you learned how to use the edit sketch and sketch tools to create new features. There are a lot of additional methods for creating features that were not touched upon in these exercises. To learn about more ways to create new features, see the ‘Creating new features’ chapter in *Editing in ArcMap*.

In addition to digitizing new features using the mouse, you learned how to use a digitizer puck and tablet to capture data from paper maps. Exercise 3 showed how you can attach a paper map to your digitizing tablet, register the paper map to the coordinate space of your GIS database, and add features using the puck. To learn more about using a digitizing tablet, see the ‘Using a digitizer’ chapter in *Editing in ArcMap*.

In Exercise 4, you learned how easy it is to modify the shape of existing features. You copied and pasted buildings from a CAD file into your GIS database; you also moved, rotated, and scaled the buildings to match a parcel subdivision using some of the editing tools in ArcMap. Once the buildings were properly placed, you used the Extend/Trim and Modify Feature edit tasks to connect water service lines to the side of each building. To learn more about editing features in ArcMap, see the ‘Editing existing features’ chapter in *Editing in ArcMap*.

You can edit multiple features at the same time in ArcMap and ensure that the boundaries between them are consistent. In Exercise 5, you learned how to create a map topology and use the Topology Edit tool and two basic editing tools to edit several features at once while maintaining contiguity along their shared edge. To learn more about editing with a map topology, see the ‘Editing topology’ chapter in *Editing in ArcMap*.

In Exercise 6, you learned how to update your existing data with features in a CAD drawing file using the Load Objects wizard. You defined a query based on the lot line CAD layer type and loaded only those features into your target layer.

Whether importing CAD data, using a digitizer to capture features from paper, or editing the shared boundaries between polygon features, ArcMap provides the tools you need to edit your data quickly and easily.

In Exercise 7, you learned how to use a geodatabase topology and the topology error management tools in ArcMap to clean up data and create new features. To learn more about editing a geodatabase topology, see the ‘Editing topology’ chapter in *Editing in ArcMap*.

In Exercise 8, you learned how to use the Spatial Adjustment tool to transform, rubbersheet, and edgemark data. You created displacement links to define the source and destination locations and set adjustment properties.

In Exercise 9, you learned how to use the Spatial Adjustment tool to transfer the attributes from one feature to another. To learn more about performing spatial adjustments on your data, see the ‘Spatial adjustment’ chapter in *Editing in ArcMap*.

In Exercise 10, you learned how to convert labels to annotation in a geodatabase, place unplaced annotation, and edit annotation features. To learn more about editing annotation, see the ‘Editing annotation’ chapter in *Editing in ArcMap*. To learn more about managing and creating geodatabase annotation feature classes see the ‘Managing annotation’ chapter in *Building a Geodatabase*.

