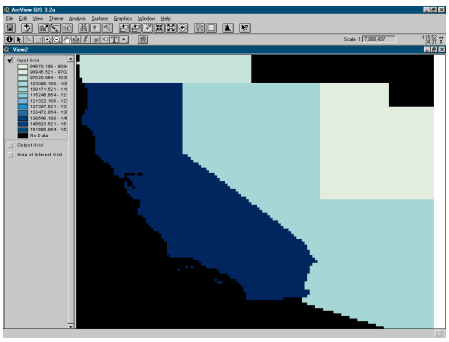
User Level
New/Casual — Advanced

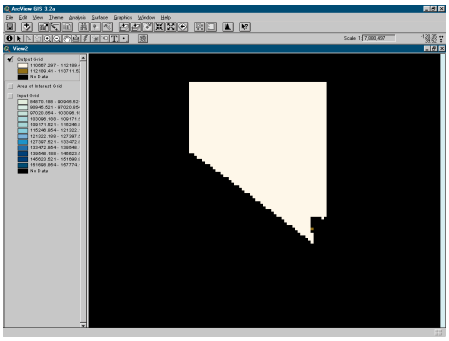
desktop notes

ArcView Spatial Analyst

Using a Mask to Control Grid Analysis



This tutorial shows how to clip an input grid based on a smaller area of interest defined by another grid to obtain an output grid with just the area of interest.



By Lisa Pitts, ESRI Technical Support

ArcView Spatial Analyst allows you to model geographic objects of varying degrees of complexity using data in grid format. Some types of spatial analysis may require only a portion of a grid theme, or the visual impact of the information may be increased by limiting the amount of information displayed to the viewer. Using only a portion of a grid for processing can be accomplished using an analysis mask.

The masked grid theme created by this process will contain No Data for those areas where processing should not occur and any value for the cells to be processed. No Data is not the same as zero. No Data cells contain no information and are ignored in analytical operations.

The following steps show how to clip an input grid based on a smaller area of interest defined by another grid to obtain an output grid with just the area of interest.

1. Start ArcView GIS and load ArcView Spatial Analyst extension.
2. Add the grid theme that will be clipped (input grid) and the grid theme covering the area of interest (mask grid) to the same view.
3. Make the input grid active and select Analysis > Properties from the menu.
4. Choose the mask grid from the drop-down box for Analysis Mask and click OK.
5. Choose Analysis > Map Calculator from the menu.
6. In the Layers list box double-click on the input grid.
7. Click the Evaluate button.

A new grid theme, containing only the data from the input grid covered by the spatial extent of the mask grid, will be created. To save the theme permanently, make the theme active and select Save Data Set from the Theme menu.

An Avenue script written by Tom Van Niel that clips input grids based on a clip theme is available on the ArcScripts page of the ESRI Web site (www.esri.com/arcscripts/). Locate this script by doing a keyword search on "clip grid" or "Tom Van Niel". For more information on using ArcView Spatial Analyst, read *Extending ArcView GIS* by Tim Ormsby and Jonell Alvi, published by ESRI Press and available from the GIS Store at **www.esri.com/gisstore**.

User Level
New/Casual — Advanced

desktop notes

ArcInfo

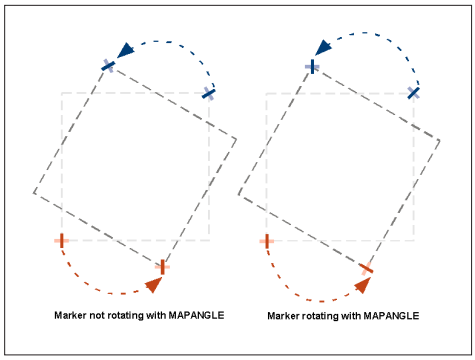
Rotating ArcSDE Point Markers

By Charles Gaffney, ESRI Technical Support

When the LAYERDRAW command with the anglelcolumn option is used to display ArcSDE points, marker symbols always maintain the same absolute angle on the graphics page even though they are being rotated around the MAPPOSITION by MAPANGLE. Apply rotation to the marker symbols by using the LAYERDRAW command with an SQL function call for the angle argument. For example:

```
MAPANGLE 30
LAYERDRAW def_layer 2 # (angle_col+([SHOW MAPANGLE]))
```

In this example, 2 is an arbitrary symbol number, angle_col is the column in the ArcSDE layer that holds the marker symbol angles, and [SHOW MAPANGLE] is returning the setting of the MAPANGLE. It is important not to leave spaces between the parentheses and the items they enclose or around the arithmetic operator. The operator itself may need to be changed depending on the sign of the MAPANGLE and the symbol rotation values.



The effect of using MAPANGLE when rotating a marker symbol.

User Level
New/Casual — Advanced

desktop notes

ArcCAD

Adding Features to an Existing Theme

By Lisa Pitts, ESRI Technical Support

Coverages may require updating to reflect changes such as the addition of new parcels or subdivisions, construction of pipelines, or changes in land use. New features can be added to coverages in ArcCAD without corrupting the database. This article describes how to add features to coverages while maintaining unique User-IDs.

Increment New Features Values for User-IDs

Run the USERID command to ensure unique IDs have been established and will be maintained. The USERID command requires three parameters—theme name, User-ID base, and User-ID increment.

Theme Name—The theme containing the User-ID base to adjust.

User-ID Base—The parameter used to create a new starting value within the theme. The default value will be the theme's last highest User-ID value plus one.

User-ID Increment—The parameter for entering a new increment for the User-IDs.

Changing Features

Before you add, modify, or delete a feature, draw the entities. Use snap to avoid creating sliver polygons or intersections on line or polygon themes. Use the NODERROR command to check for node errors before creating labels.

Add a Feature

To add a feature, run the ADDFEAT command. ADDFEAT writes points, lines, polygons, and annotation coordinate information to the GIS data set of the specified theme but does not create topology. After adding a feature, ArcCAD will prompt you to select BUILD, CLEAN, or WAIT. Choose the WAIT option. Make any necessary additions, then run BUILD or CLEAN to make all the changes at once. Creating topology with BUILD or CLEAN will update the link between the drawing and the coverage.

Delete a Feature

To delete a feature, do not just erase the feature's entity in AutoCAD. Select the drawing representation of the entity to be deleted and run the DELFEAT command. The entity will be removed from the database though it will remain on the screen. Then use the ERASE command to remove the entity from the screen. You will need to eventually erase all entities on the layer you are editing to view the changes.

Modify a Feature

Run the MODFEAT command to update a theme after modifying existing features. Do not use this command after adding features. Though you will not be able to see the graphic representation of your data when you delete entities, the changes will be recorded in the database. You will be prompted to select the entities you have modified. Draw or click on those entities you have modified.

Run the SAVEFEAT command to update all additions and modifications made to the coverage. Select the entire drawing before using this command. Check and correct all node errors. If you have created new polygons or if label points are missing from most or all polygons, use the CREATELAB command to create label points. Any point entity may be used as a label point including block insertion points, point entities, shapes, and text insertion points. Select these features along with the boundary lines during ADDFEAT. The entities will be added as the polygon label points.

Creating Topology for a Coverage

Two commands are used to create topology for a coverage—BUILD and CLEAN.

BUILD creates or updates a feature attribute table (FAT) and defines polygon and arc–node topology. It renumbers arc features and polygons but not nodes. It does not process overlapping arc features or adjust coordinates. It also does not split features at their intersection—use CLEAN for this function.

CLEAN generates a coverage with the correct polygon and line topology. It performs analysis on arcs and splits overlapping or intersecting arcs. It removes sliver arcs (using fuzzy tolerance) as well as dangle arc features shorter than a specified dangle length. It can also move arc coordinates to create polygons (using fuzzy creep). It does not process point features and is slower than BUILD.

If you have a polygon theme, verify the edits by redisplaying the arcs and label points for the polygon theme. AU

Disclaimer

The user assumes all responsibility for use of the sample routines as well as implementation of them to achieve the intended results. The user is responsible for fully testing each portion of the routine prior to relying on it. This information is offered as a sample only, and ESRI assumes no obligation for its operation, use, or any resultant effect in spite of this offer. This information and these sample routines are provided on an "as is" basis, without warranty of any kind.

Please remember to back up your data prior to using this information.