Working with Cartographic Representations

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Overview

- What are representations?
- Working with representation rules
- Geometric effects and marker placement styles
- Overrides
What are representations?

- A way to symbolize features to solve common cartographic challenges
- A storage model that stores symbols with data
- Part of a feature class, managed through a layer
What are representations?

Create custom symbols

Add drawing behavior

Control marker placement

Mask features

Move symbology independently of geometry
What licensing is required for representations?

- Representations recognized by all ArcGIS products

- Basic (ArcView) license:
  - View representations and properties

- Standard (ArcEditor) license:
  - Create and edit representations
  - Some geoprocessing for representations

- Advanced (ArcInfo) license:
  - View, create, edit representations
  - All geoprocessing tools
How do I convert symbology to representations?
How are representations stored?

- Attributes in the geodatabase
- Properties of a feature class
- Managed through a layer
Multiple Representations

- Feature classes can store more than one representation
  - Symbolize city differently for tourists and city employees
  - Give different users different views

The same data represented two ways—both versions are stored in the data
Representation Rules
What are representations rules?

- Symbol layers
- Geometric effects, marker placement styles
Building Representation Rules

- Rule describes a unique symbol
- Consist of symbol layers

- Marker
- Line
- Fill
- Geometric effects
Demonstration
Geometric Effects and Marker Placement Styles
Geometric Effects

- Dynamically modify symbology
  - Affect all symbol layers, or just one
  - Can convert geometry type
- Applied sequentially

End with half dash
Add control points for corners
Offset for drop shadows
Rotate to polygon angle
Marker Placement Styles

- Position representation markers
  - Along lines and polygon outlines
  - Within polygons
  - In relation to points

Along lines

Randomly inside polygon
Whole markers cross boundary

On point with offset for drop shadows
Building Representation Markers

- **Marker Editor**
  - Add and edit font glyphs*
  - Draw polygons and lines
  - Add and remove vertices
  - Align, order, group, rotate
  - Resize, erase, warp, explode parts, etc.

*Glyph: any character element in a font
Overrides
Representation override

- Exceptions to the rule
  - Customize individual features
  - Made while editing
- Property overrides
  - Change any property of the rule
- Geometry overrides
  - Store alternate geometry
Property override

Create an exception to the rule
Geometry override

Before:
Symbols overlap

After:
Representation moved

Reshape without changing feature geometry
Creating Overrides

• Interactively with the representation toolbar
• Explicitly change rule property
• Use field in the attribute table to define override
• Cartographic Refinement geoprocessing toolset
Representation Toolbar

- Interactively create overrides

- Graphic editing tools
  - Geometry overrides

- Modify rule properties
  - Property overrides
Field Mapping Override

- Link symbol layer properties to feature attributes
  - Size, width, angle, visibility, etc.
- Draw symbols based on current data
- Any rule property can use attribute values
  - Must use valid field data type
- Reduce duplication of rules
Cartographic Refinement Geoprocessing Tools

Align Marker To Stroke Or Fill tool

Calculate Polygon Main Angle tool

Create Overpass/Underpass tools
Free Representations

- Unique representation for a feature
  - Complete control over feature display
  - Copy of the entire rule in the Override field
  - Structure of the rule can change
- Can undo by reassigning a rule
- Use sparingly
  - Try more complex rules and overrides first
Visual Specifications Tool

**Production Mapping extension**
- Manage representations across many layers
- Link feature attribution to representation rule
- Single production workflow for symbology and text
- Apply symbology using relational queries
What’s New in 10.1

- Searchable representation markers and rules
- Marker placement clockwise rotation
- New geometric effects
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Thank you