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

- ArcView license:
  - View representations and properties

- ArcEditor license:
  - Create and edit representations
  - Some geoprocessing for representations

- 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

- Dark blue line symbol layer
- Kayak marker symbol layer
- Blue fill symbol layer
- Smooth geometric effect

- Place marker in center
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

Dashes – 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
Demonstration
Representation Overrides

- **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

Tool Properties

Drawing Properties
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
Representations Road Ahead - 10.1

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

Extension
Offset Tangent
Suppress

Swimming Area
Questions?
Thank you

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