Database-Driven Cartography
From a Digital Landscape Model, With Multiple Representations and Human Overrides

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Caveat

- This is a forward-looking presentation, and much of the capabilities it describes are still under development.
- As such, it is intended to give guidance as to likely future direction and should not be interpreted as a commitment by ESRI to provide precise capabilities in specific releases.
Multiple Representations

• One DLM feature should often be represented differently for reasons of
  – Scale
  – Product specification
  – Cartographic licence
  – Sheet edges

• Could copy to new class, but
  – Gives divided workflow
  – Problems with update

• Could do products in graphics package or map finishing system, but
  – Not WYSIWYG
  – Different environment
  – Lose late updates
Project Vision for ArcGIS Cartography

• One environment from start to end of cartographic process

• Provide the cartographer with tools to:
  – Automatically generate high-quality cartographic representations from GIS data
  – Override the automated representation for individual features where necessary for clarity
  – Interact with the cartographic representation using intuitive tools like those in Adobe Illustrator etc.
  – Store representation definitions and overrides in the geodatabase.
Four Stages of Representation Control

1. Polygon feature (Orchard)
2. GIS Clipped fill
3. Automatic Representation
4. Manual override
Four Stages of Representation Control

1. Polygon feature (Cemetery)
2. GIS Clipped fill
3. Automatic Representation
4. Manual override
Key Capabilities

- **New Representation Class in the Geodatabase**
  - Like a feature class, but for vector representations

- **Automated representation pipeline**
  - Geometry filters + symbolization rules

- **Geometry Filters**
  - Modify geometry for display (offset, fill with points, ...)

- **Human overrides**
  - Position, size, color, shape, ...

- **Intuitive graphical editing tools**
  - Operate directly on representation
  - Like best of Illustrator, Freehand, etc
Representation Pipeline

GIS Feature → Representation Rules & Overrides

- Shape

  - Geometry Filter
  - Geometry Filter

→ ArcGIS Symbol → Screen or Print
Escarpment – Stages of Control

1. Line features
2. GIS symbol
3. Representation
4. Manual Override
Road crossings

Road intersections ambiguous

Automatically calculate crossings
Use crossing areas as mask
Can add parapets automatically
Demonstration