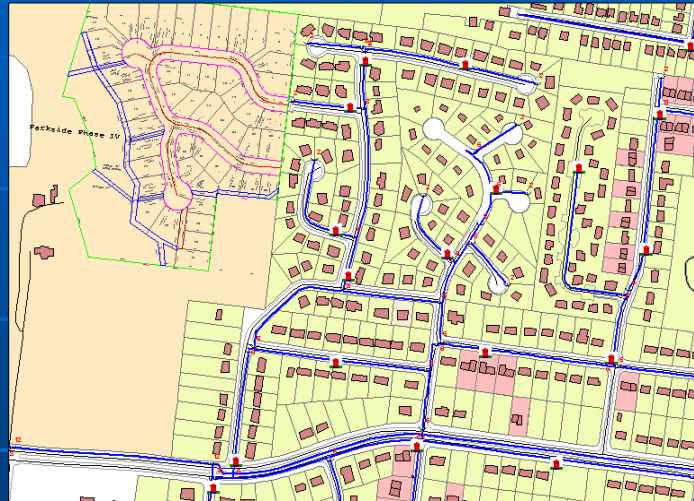


CAD to Feature Class: Tips and Tricks

Presented by
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ESRI Seattle, Technical Sales

GIS/CAD Interoperability

CAD provides new GIS content



GIS provides base map and spatial context for the creation of new content

ESRI-CAD Integration

- ArcGIS
 - *CAD Data Sets*
 - CAD-Specific Geoprocessing Tools
- Data Interoperability extension
 - More Read/Export formats
 - Semantic Data translation

CAD Versions Supported by ArcGIS 9

ArcGIS Direct Read (R/O)

Autodesk DWG/DXF R14-2004/2005*

Bentley DGN V7, V8

Geoprocessing Translation (R/W)

Autodesk DWG/DXF R14, R14-2004/2005*

Bentley DGN V8(R/W), **V7 (R/O)**

Data Interoperability Extension (R/W)

Autodesk: DWG/DXF R14-2004/2005*, MapGuide

Bentley MGE/Geographics, DGN V7, V8

Tips: Preparing CAD Data for ArcGIS

- Organize layers/levels intelligently
- Create data in real-world coordinate locations
- Try to use entities/elements that are currently supported by ArcGIS
- Use blocks/cells for attributing objects (i.e., points inside polygons)
- Use unique symbols to represent different objects - use unique text symbols for different text objects
- Separate cartographic objects (i.e., title, blocks, legends, etc.) from geometry

Core ArcGIS Tools

ArcGIS CAD Feature Classes

- Direct Read
 - In-Memory *Drawing Layer* and *Feature Data Sets*
 - Similar to Database “*View*” of CAD “*Database*”
 - Supports Points, Lines, Areas, Text, Blocks/Cells, Attribute Tags, 3D Features
 - Data Source Abstracted as “GIS Features”
 - Control Selection, Symbology, Perform Analysis, Etc.

The screenshot displays the ArcGIS interface with several windows open. On the left is the ArcCatalog window showing a file tree with CAD files like 'campus.dxf', 'COGO.DGN', 'INDEX.DWG', and 'PARCELS.DWG'. The main map window shows a street map with various features. The 'Layers' panel on the right lists 'PARCELS.DWG' and its sub-features: 'PARCELS.DWG Annotation', 'PARCELS.DWG Point', 'PARCELS.DWG Polyline', and 'PARCELS.DWG Polygon'. At the bottom, the 'Attributes of PARCELS.DWG Point' table is visible, showing a list of points with their attributes.

FID	Shape	Entity	Handle	Layer	Co						
584	Point Z	Insert	E616	LOT-D							
585	Point Z	Insert	E61B	LOT-D	7	CONTINUOUS	0	0	ID	9.2	92018 29390 sf(c)
586	Point Z	Insert	E620	LOT-D	7	CONTINUOUS	0	0	ID	9.2	92019 1.49 Ac(ass)
587	Point Z	Insert	E625	LOT-D	7	CONTINUOUS	0	0	ID	9.2	92020 1.76 Ac(ass)
588	Point Z	Insert	E62A	LOT-D	7	CONTINUOUS	0	0	ID	9.2	92021 12196 sf(ass)
589	Point Z	Insert	E62F	LOT-D	7	CONTINUOUS	0	0	ID	9.2	92022 41818 sf(p)

CAD Specific GP Tools

- Data Management → Conversion
 - Import from CAD (ArcView)
 - Import CAD Annotation (ArcView)
- Samples → Conversion → To/From CAD
 - CAD Lines to Polygon Features
 - CAD to Featureclass
 - CAD to FC with Attribute of Nearest Points
 - CAD to FC with All Joins
- Export to CAD tools (*ArcInfo required*)
 - Create CAD XData
 - Create CAD Alias
 - *Consider Make Feature Layer (Field List Parameter)*
 - Add CAD Fields
 - Polygon FC to CAD Lines

Demo

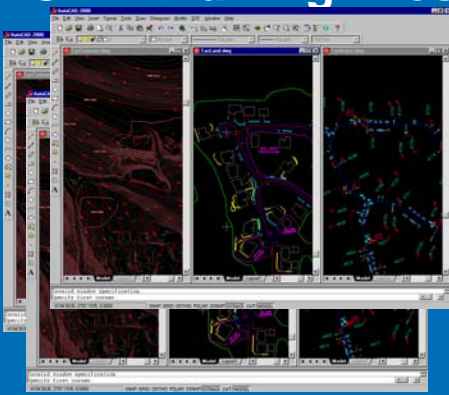
ESRI

Data Interoperability extension

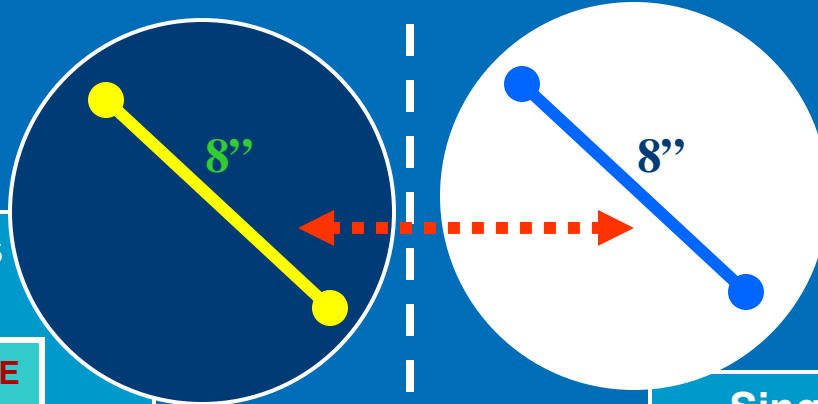
Data Interoperability extension

- Based on FME Technology from Safe Software, Inc.
- Direct Read
 - Direct Read 70+ Spatial Data formats
- Semantic Translation
 - Simple or Complex Conversions
- Workbench for Custom Translation
 - Spatial Extract Translate and Load (ETL)
 - Visual Configuration Environment
 - Rich Schema Mapping Tools

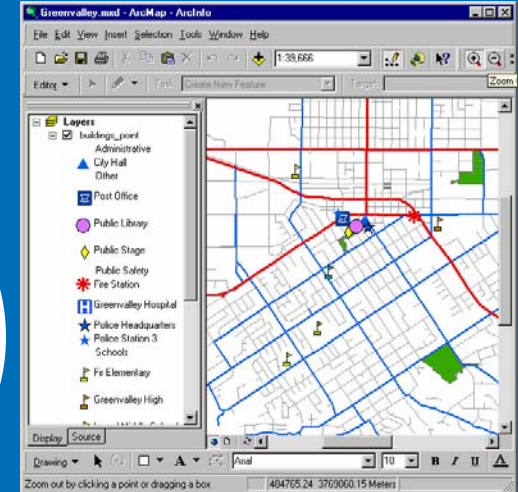
CAD Drawing Files



Semantic Translation



GIS Layers



Multiple CAD Objects And Properties

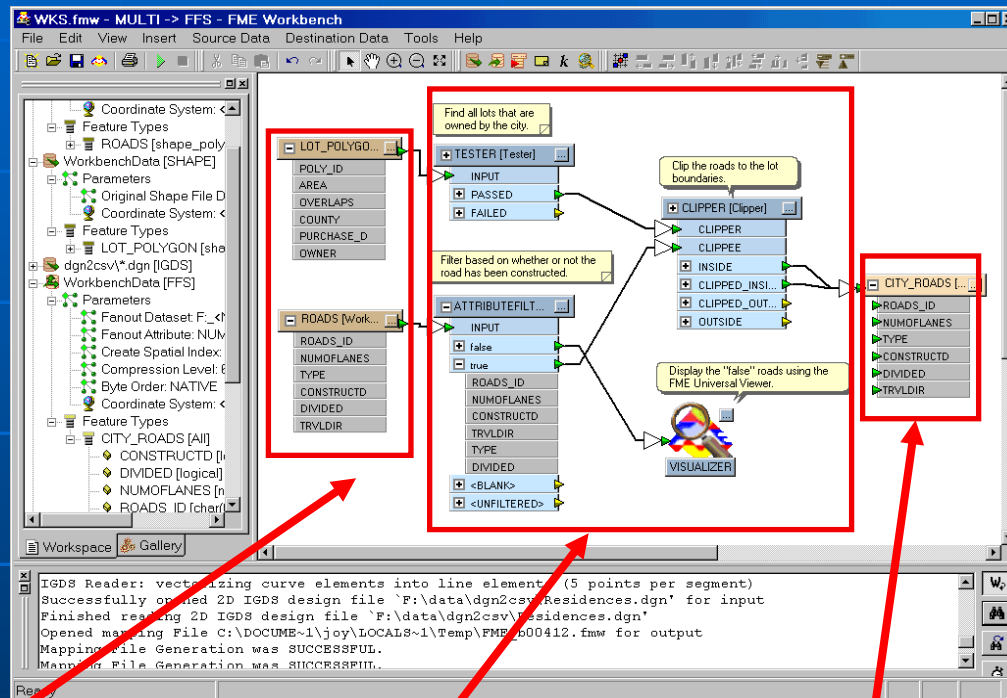
Entity Type = **LINE**
Color = **RED**
Layer = **WATER_LINE**
Linestyle = **STANDARD**
Geometry = **[LINE]**

Entity Type = **TEXT**
Color = **BYLAYER**
Layer = **PIPE_TEXT**
Font = **STANDARD**
Value = **8''**

Single GIS Pipe Feature With Attributes

	Pipe ID
	Owner
1985	Date Installed
Cast Iron	Material Type
[Line]	Geometry
8 inch	Diameter

Data Transformation Workbench application



Step 1 – Extract: Drag your source dataset on to the workspace.

Step 2 – Transform: Adjust the way your data flows from its source to the destination

Step 3 – Load: Load your data into the destination

Demo

ESRI Solutions by User Requirement

Must Extract Simple Features from CAD files

- Native CAD file read (ArcView)
 - Simple Data Loader/Cut and Paste, SELECT, COPY FEATURES

Must Use a CAD file without Conversion As Data Source

- Native CAD file read (ArcView)
- Data Interoperability Extension (Extension \$2500)

Must Merge Multiple CAD Files without Conversion As Data Source

- Data Interoperability Extension (Extension \$2500)

Must Build Geodatabase from CAD Data

- Native CAD file read used in Geoprocessing (ArcView)
- IMPORT FROM CAD tool in Geoprocessing for more flexibility (ArcView)
- Data Interoperability Extension with or without Geoprocessing depending on need of translation task (Extension \$2500)

Questions?

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