Loading CAD data into the Geodatabase

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Agenda

- What is the direct-read CAD data model?
- Best practice geoprocessing tools
- The ETL pattern
- Extracting data
  - Demo (loading geometry)
- Loading CAD annotation that sizes correctly
  - Demo (loading annotation)
The direct-read CAD data model
The direct-read CAD data model

Organizes and displays contents in ArcGIS desktop applications

MyDrawing.DWG (or DGN)

- CAD feature classes
- Attributes
  - Standard
  - CAD-defined

Spatial reference
  MyDrawing.PRJ
Georeference
  MyDrawing.WLD
Metadata
  MyDrawing.XML

Load

- Geometry
- Annotation
- Attributes
  Feature classes for DWG files
Best practice tools
Best practice tools

Tools that accept a dataset, feature class or feature layer as input

- Copy Features
- Feature To Polygon
- Feature Class To Feature Class
- Delete Fields and Append
- CAD To Geodatabase (complete datasets)
- Import CAD Annotation (annotation only)
The ETL pattern
The ETL pattern

CAD conversions follow a common ETL pattern

ArcMap

Geo-reference

Extract

Definition query

Geodatabase

Transform

Load

GP tools

MyDrawing.DWG

Annotation

Multipatch

Point

Polygon

Polyline

Select

Split

Polygons

Spatial joins

Attributes

Table joins
Extracting CAD data
Extracting CAD data

Use Query Builder and leverage EXP files

- Query Builder
- Geo-referencing
- ArcMap
- MyDrawing.DWG
  - Annotation
  - Multipatch
  - Point
  - Polygon
  - PolyLine

- Geodatabase
- Load
- Transform
- Definition query
- "Layer" = 'V-PROP-LINE'
- Load
- Save
- Parcels.EXP
- ControlPoints.EXP
- Roads.EXP
- Easements.EXP
- Parcels.EXP
Demo - Loading CAD data
Converting CAD Annotation
Loading CAD annotation

Assign a units definition that matches the target data frame

- **MyDrawing.DWG**
  - Spatial reference
  - Linear units: U.S. Feet (0.304801)

- **GP tools**
  - Import CAD Annotation
  - Internal units

- **ArcMap**
  - Data Frame
  - Map units: \( \text{U.S. Feet} \times 1 \text{ (meter)} = 3.2808399 \text{ U.S. Feet (0.304801)} \)
Demo – Loading CAD Annotation
Loading CAD data into the Geodatabase

Review

• CAD conversion workflows follow a common ETL pattern.
• Use Query Builder and leverage EXP files.
• You can use any tool that accepts a dataset, feature class or feature layer as input.
• Assign a coordinate system with linear units that match the target data frame when loading annotation.
Thank You

- Please fill out evaluations at www.esri.com/sessionevals
- Sessions are recorded and can be purchased
CAD Technical Workshops

Remaining sessions

- Using ArcGIS Map Services in Microstation
  - Thursday, July 14, 10:40AM - 11:00AM (24 A)

- Integrating CAD Data with the Parcel Fabric
  - Thursday, July 14, 11:05AM - 11:25AM (24 A)

- Georeferencing CAD datasets
  - Thursday, July 14, 3:15PM - 3:35PM (24 A)

- Exporting GIS Features to CAD Drawings
  - Thursday, July 14, 3:40PM - 4:00PM (24 A)

- Using CAD Data in ArcGIS
  - Friday, July 15, 9:00AM - 10:15AM, (7 A/B)