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Georeferencing CAD Datasets

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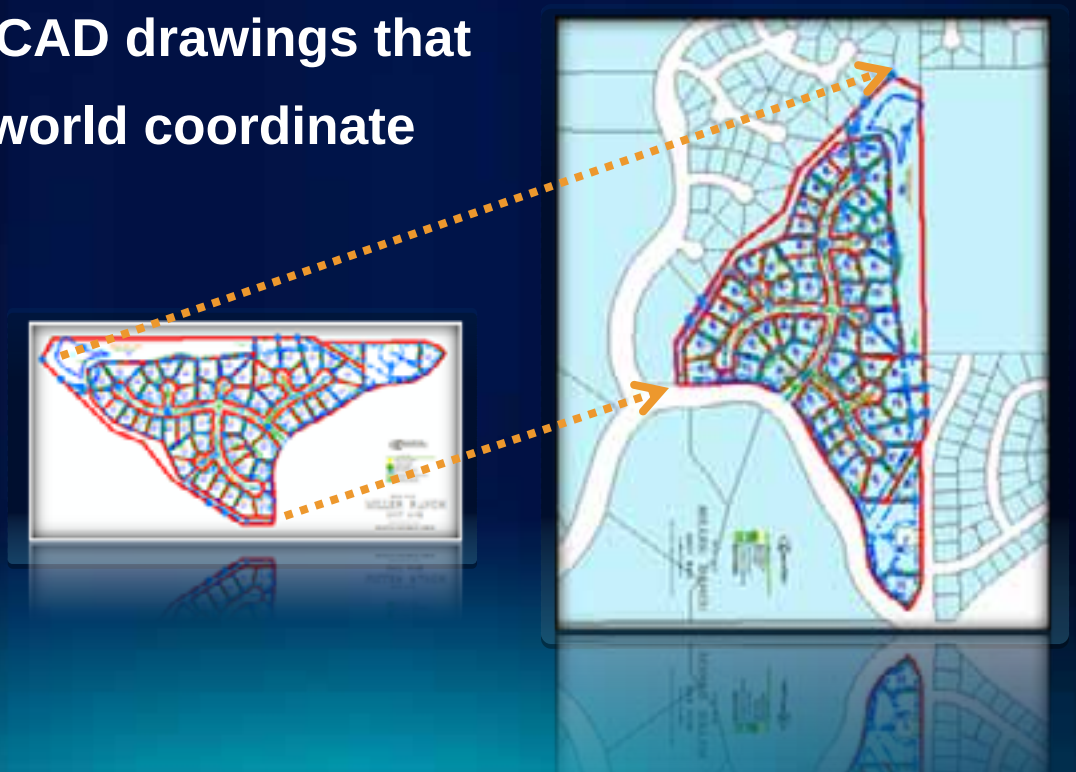
Agenda

- Overview of Georeferencing CAD Datasets
- Assigning coordinate systems to CAD Datasets
- Demo: Repositioning CAD Datasets
- Summary

Georeferencing

- Reposition CAD datasets to align with GIS layers
  - Move, Rotate, & Scale
- Assign coordinate system for map reprojection

- NOT required for CAD drawings that are drawn in real-world coordinate location



Georeferencing Method

- Two-point Similarity transformation method
  - Move, Rotate, and Scale
  - Aspect ratio always maintained
  - Cannot skew or ‘rubber sheet’ CAD drawing

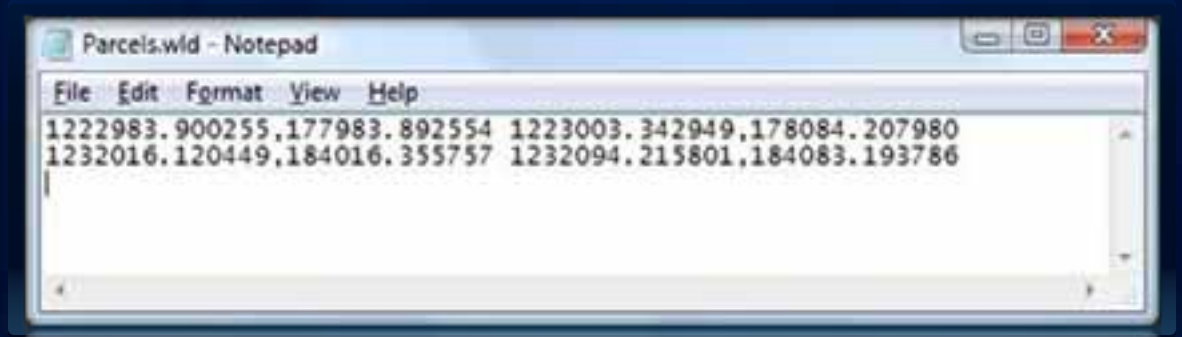
- Transformation managed by World Files
  - ArcGIS is not modifying the CAD drawing
  - World file use CAD file name prefix
  - Must also reside in same folder

Georeferencing: World Files

- File based, two point transformation for CAD data
- Uses the .wld file extension
- Simple text file containing two lines with two pairs of coordinate values:

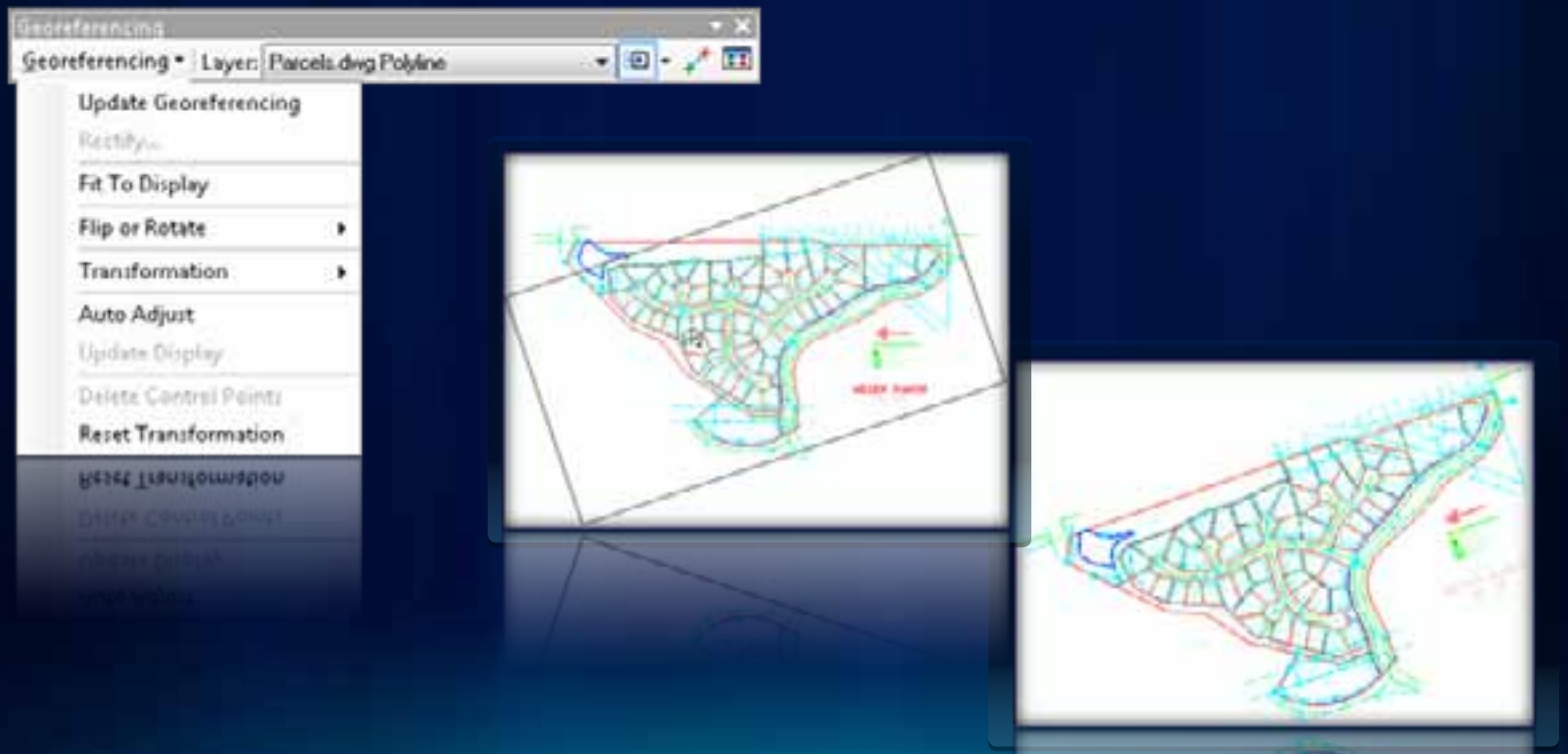
  <From X1, From Y1> <To X1, To Y1>

  <From X2, From Y2> <To X2, To Y2>



Georeferencing Toolbar

- **Georeferencing toolbar – use mouse pointer to move layer and create control points in map**
  - **Rotate, Scale, and Shift tools**



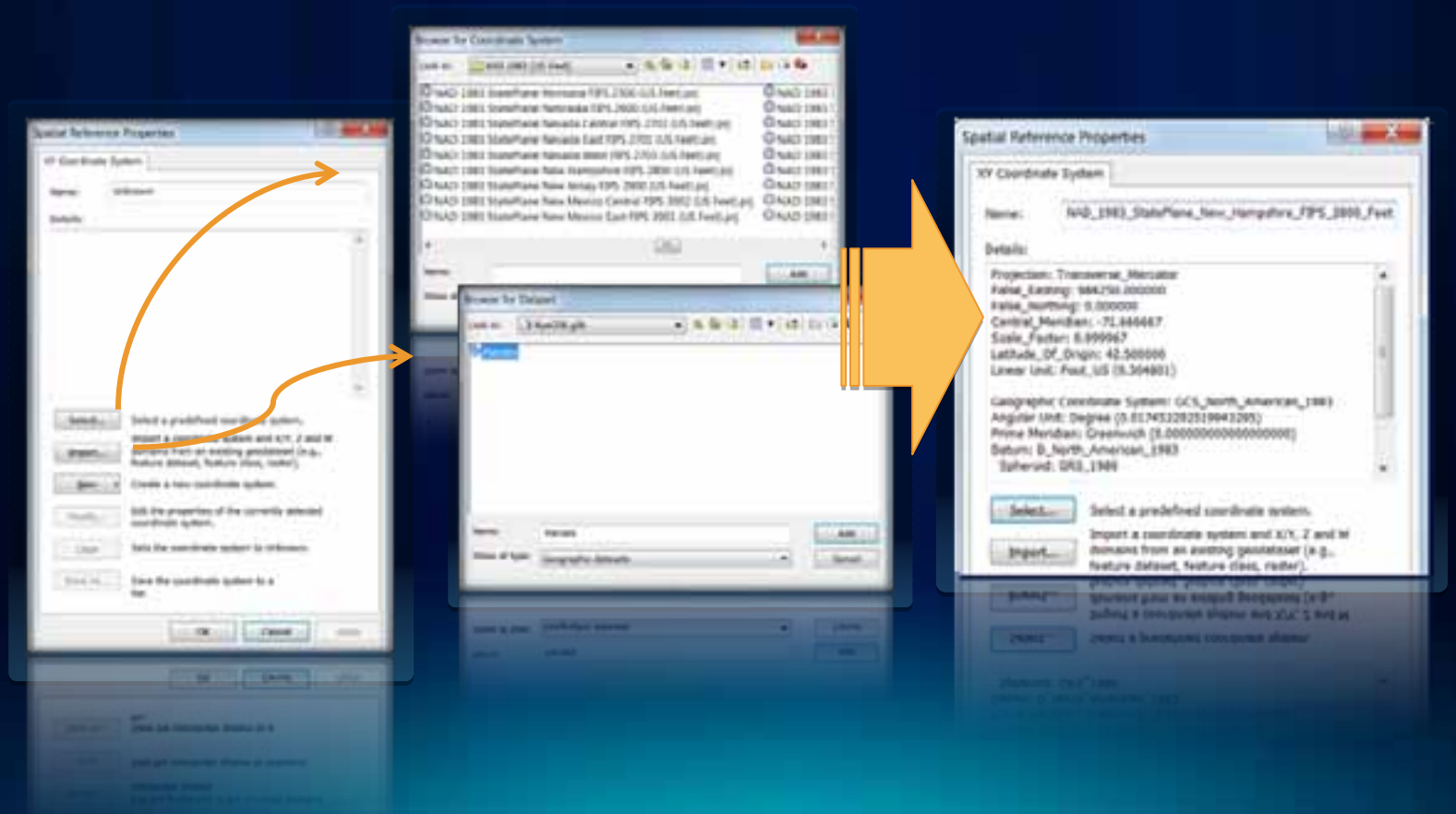
Assigning Coordinate Systems to CAD Datasets

Coordinate Systems - Overview

- CAD Datasets with defined Coordinate Systems reproject on-the-fly to align with other map layers
- Enables CAD Dataset to be used for spatial overlays and mapping

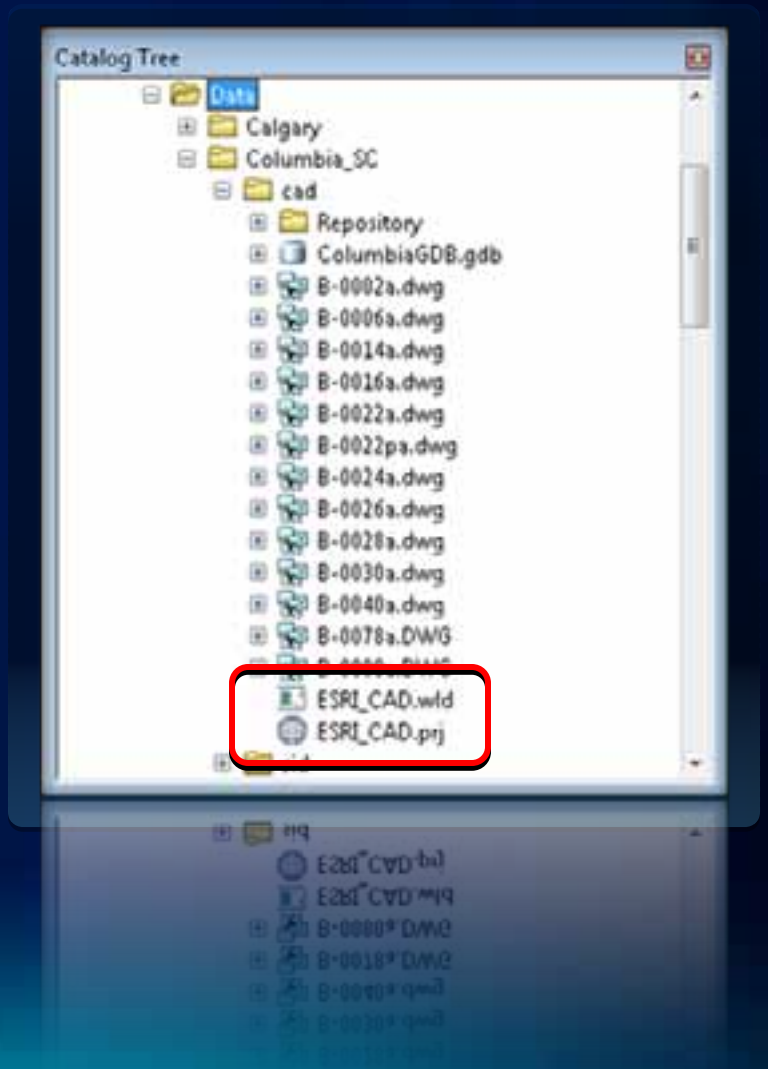
Assigning Coordinate Systems

- Defined at the CAD Dataset level
- Catalog window's Spatial Reference Properties dialog

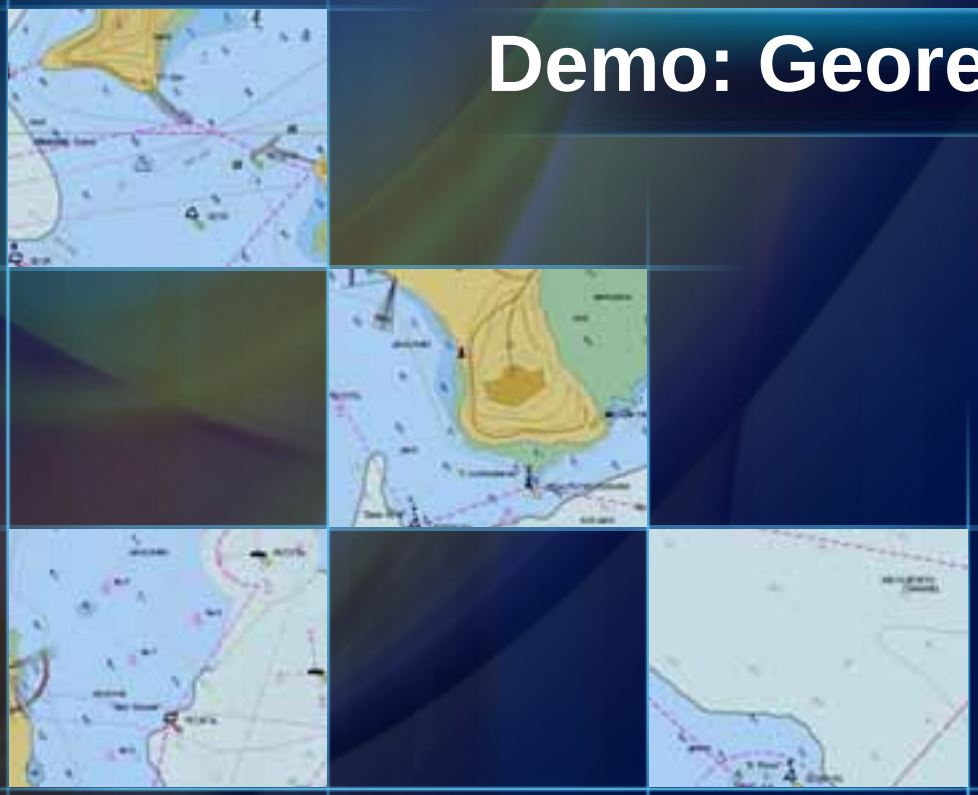


Universal Projection and World Files

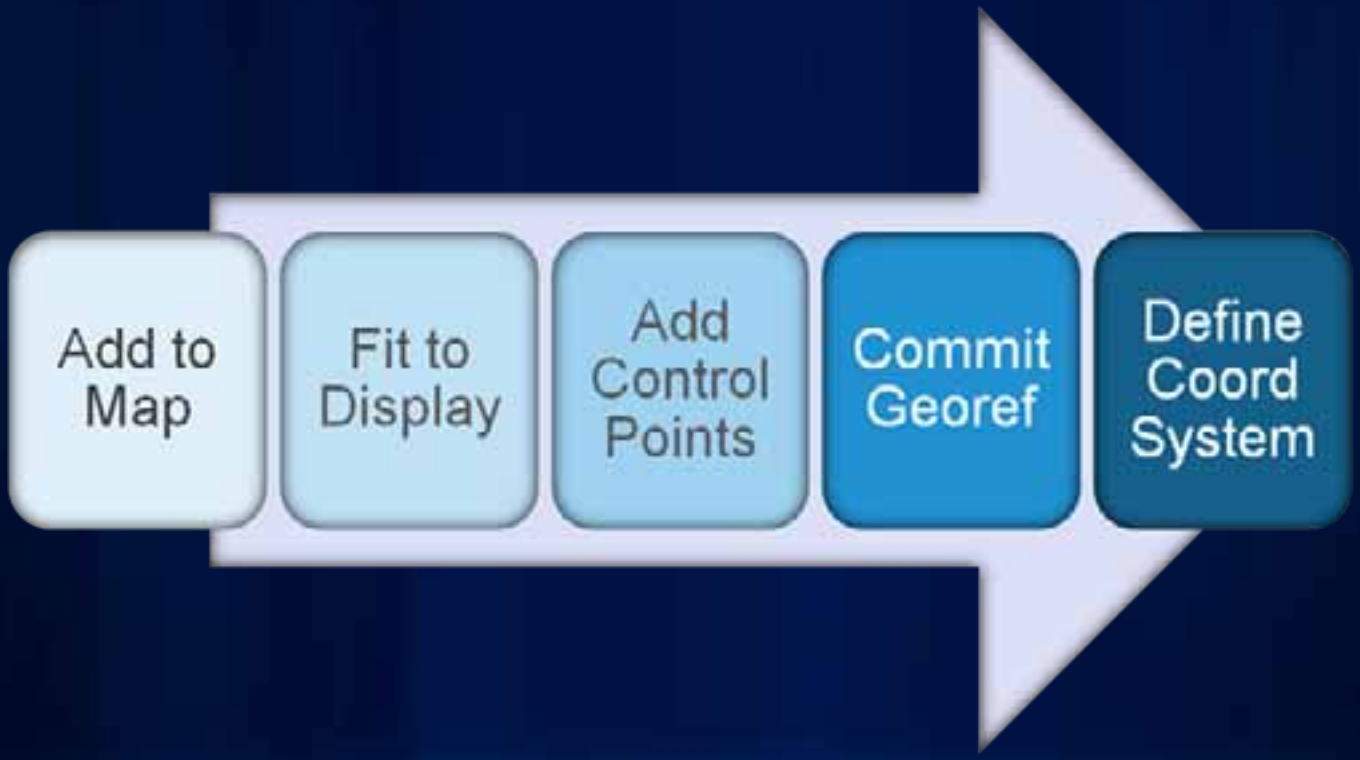
- **Universal Projection File**
  - ESRI_CAD.PRJ
  - Applies same coordinate system to all CAD files in a workspace
- **Universal World File**
  - ESRI_CAD.WLD
  - Applies identical transformation to all CAD files in a workspace
  - Useful for set of tiled CAD drawings



Demo: Georeferencing CAD Datasets



Georeferencing Process



Resources

- CAD Integration Resource Center
  - http://resources.arcgis.com/content/cadintegration/10.0/about
  - 'Georeferencing CAD Data' Help Topics
- Working with CAD Data - Instructor Led Course
  - http://training.esri.com/gateway/index.cfm?fa=catalog.courseDetail&CourseID=50120390_9.x
- Working with CAD in ArcGIS – Live Training Seminar
  - http://training.esri.com/acb2000/showdetl.cfm?DID=6&Product_ID=887
- Lining Up Data in ArcGIS: A Guide to Map Projections (ESRI Press)
  - http://www.esri.com/news/releases/10_2qtr/lining-up-data.html

Closing

- Questions
- Please fill out the online evaluation forms at:
  - www.esri.com/sessionevals
- Thank you for attending!

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