



GIS to CAD Conversion Factsheet

Introduction

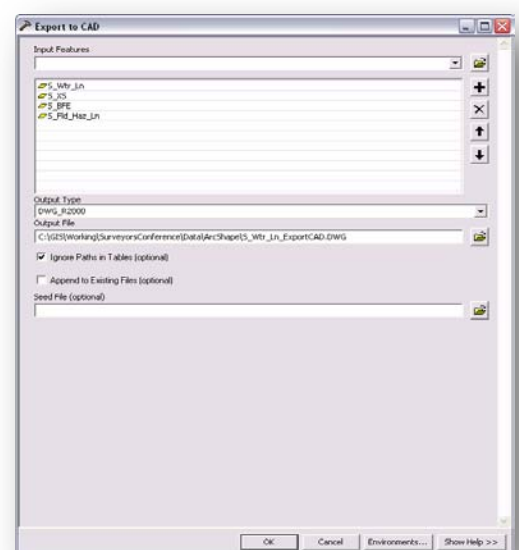
- This fact sheet explains procedures how GIS data (.shp) can be converted to CAD (.dwg) format
- There are many ways data can be converted from one format to another; this fact sheet covers some commonly used conversion methods
- It is recommended that users attempting this conversion have a basic understanding of vector data and projection systems
- GIS Shapefiles can be exported to CAD drawings to serve as reference data
 - Layers can be added and/or edited as usual in AutoCAD
 - i.e. DFIRM layers can be added into a single CAD drawing and this CAD file can be exported for use in AutoCAD
- Spatial reference information can be stored so that the CAD files (.dwg) can be edited and still maintain their georeferenced location
 - These files can be brought back from CAD into ArcMap and “fall back into place”
- Important things to note:
 - Do not change the name of the CAD file once it has been exported (this can result in unstable behavior when attempting to spatially reference the file in ArcMap)
 - Do not delete the .xml file and ensure that it is always in the same directory as the exported CAD file (the exported CAD file should have the exact same name as well)
 - **Make note of the coordinate system of the ArcMap document when the data is exported – it has to match the coordinate system of the CAD file**

GIS to CAD General Procedures (using ArcGIS)

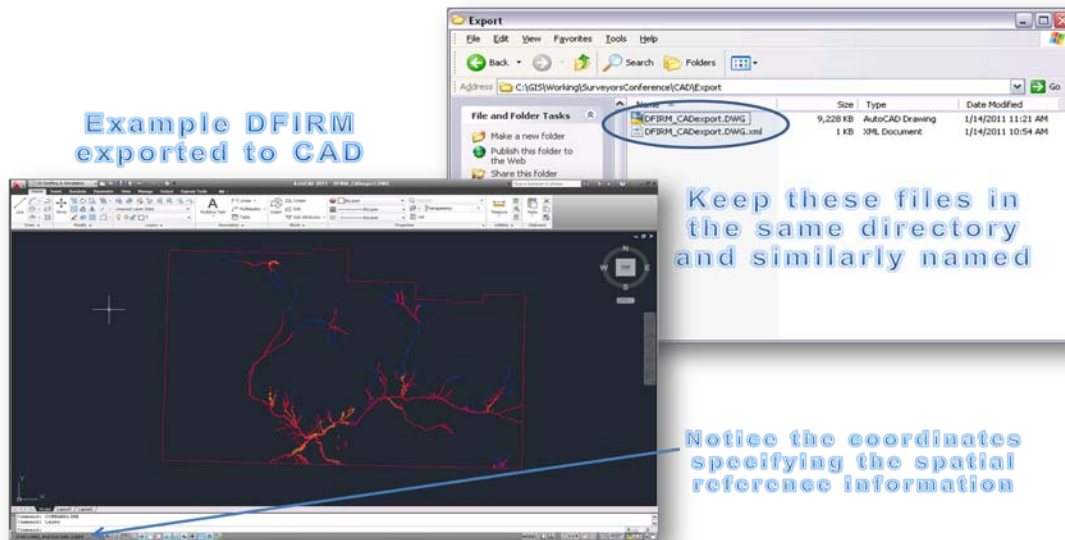
1. Open a new ArcMap MXD
2. Press the Add Data Button  and load GIS shapefiles and/or feature classes.
3. Open ArcToolbox  (at least an ESRI ArcEditor license is required to use this tool)
4. Navigate to *Conversion Tools* → *To CAD*
5. Open the *Export to CAD* tool

Key Terms and Acronyms:

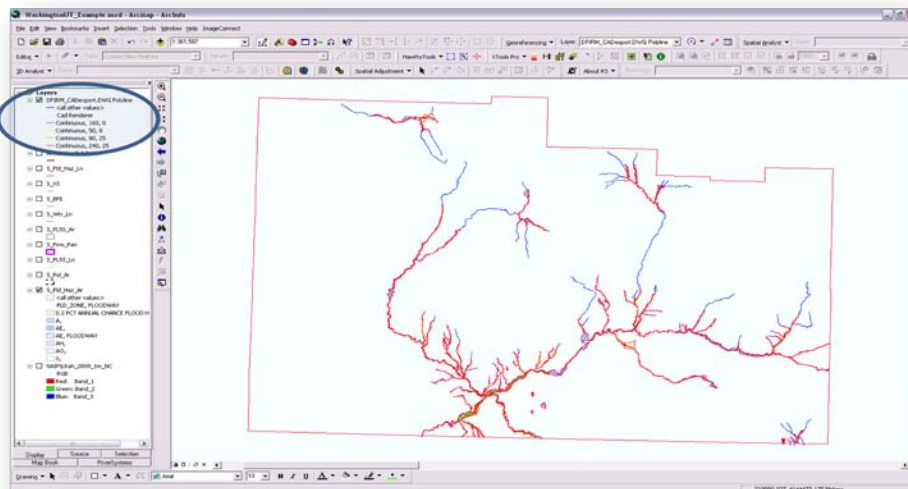
- **CAD** - Computer Aided Design
- **DFIRM** – Digital Flood Insurance Rate Map
- **GIS** - GIS is a system of hardware and software used for storage, retrieval, mapping, and analysis of geographic data.
- **ArcGIS** - is a Windows suite consisting of a group of geographic information system (GIS) software products produced by ESRI.
- **ArcToolbox** – is a user interface in ArcGIS for accessing and organizing geoprocessing tools, models, and scripts.
- **Coordinate System** - is a system which uses one or more numbers, or coordinates, to uniquely determine the position of a point or other geometric element.
- **Feature Class** - In ArcGIS, a collection of geographic features with the same geometry type (such as point, line, or polygon), the same attributes, and the same spatial reference.
- **Shapefile** - a digital vector (non-topological) storage format for storing geometric location and associated attribute information.
- **XML** - Extensible Markup Language is a set of rules for encoding documents in machine-readable form.



- Make note of the other CAD-related tools in the same directory
6. Add all applicable feature classes into the dialog
 - Each of these spatial files will, in turn, become a layer in the resulting AutoCAD drawing
 - All other attributes associated with exported data will be lost
 - It may be necessary to do some pre-processing before GIS files are exported
 - Clip out irrelevant features
 - Create layers from needed features (i.e. just floodway, etc.)
 7. Use the “Show Help” option in ArcToolbox to investigate how the other options will affect the output



8. After file is edited in AutoCAD, to incorporate changes:
 - Follow the same procedure as you would for a projected CAD file
 - Navigate to the CAD feature dataset in ArcCatalog
 - Add in the appropriate CAD feature classes
 - Export those to shapefiles for incorporation into database



Note: Do not save/use 2010 AutoCAD drawings in ArcGIS; always save/convert the drawing(s) you intend to work with in either 2000 or 2004 .dwg format.