

Kane County GIS-Technologies Management Solutions

DGN to SDE and Back Again



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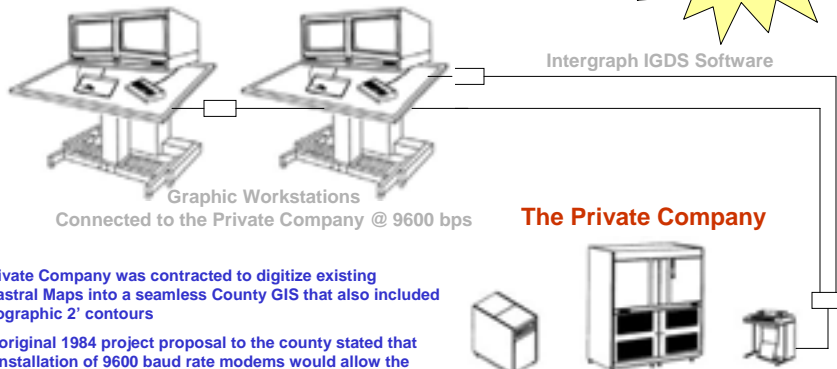
ESRI 2006

Kane County Illinois

DGN to SDE and Back Again In the Beginning – DGN

Kane County, Illinois
Supervisor of Assessments

**Bears Win
Superbowl XX**



A private Company was contracted to digitize existing Cadastral Maps into a seamless County GIS that also included Topographic 2' contours

The original 1984 project proposal to the county stated that the installation of 9600 baud rate modems would allow the county *immediate* access to the geographic data base stored in the central processing system at the private Company.

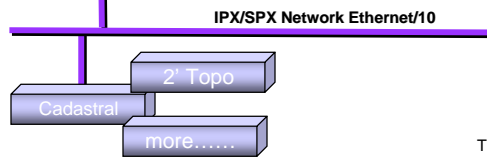
1985

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Cadastral Base Brought in House - DGN



Client Access

DOS
Microstation – DGN

Vector Files

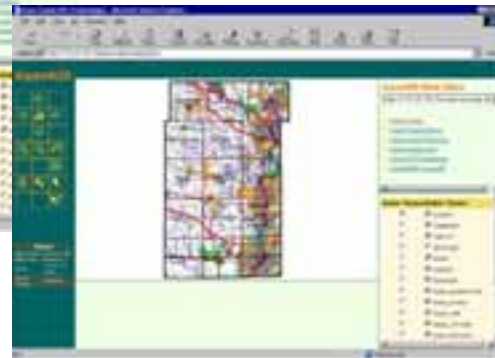
The first vector files had 52 levels with 2 County offices using. This included around 5,000 files in about 100 directories.

This was easy to manage.

1993

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Introduction to the ESRI World - SHP

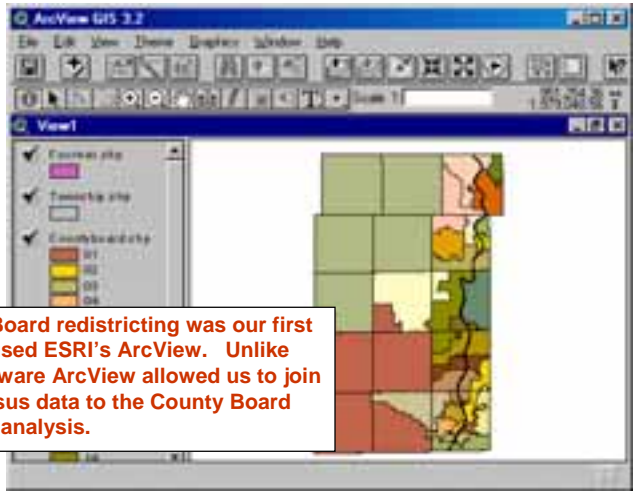


MapObjects Internet Map Server was our introduction to the ESRI world.

It worked with Microsofts IIS and MrSid files but required us to export our DGN files to SHP.

1999

DGN to SDE and Back Again
ArcView 3.x Project - SHP



The County Board redistricting was our first project that used ESRI's ArcView. Unlike our CAD software ArcView allowed us to join the 2000 census data to the County Board polygons for analysis.

2001

DGN to SDE and Back Again
Vector File Overload – DGN, SHP



TCP/IP Network Ethernet/100

Parcels	Lots	Births	Un-Paid Taxes	Cadastral
Water Sheds	Annotation	Election Dist	County Board	Lead Poisoning
Creeks	River	ROW	Hydro	Aerials
Towers	Park Dist	Bike-Paths	Planimetric	Zoning
Fire Districts	Sections	Radon	Floodway	Flood Plains
Fire Depart	Townships	Railroads	Forest Preserve	2' Topo
Centerlines	Soils	Library Dist	AIDED	Food Services
Cities	School Dist	Subdivisions	Land Use	more.....

Client Access

- WIN2000
- Microstation/Geographics (maintenance)
- AutoCad
- ArcGIS/ArcIMS(web)
- Custom Applications using MapObjects

Vector Files

Over 200 layers which were stored in more than 30,000 files in 1,300 directories on multiple file servers.

With as many as 10 offices creating and maintaining layers every day.

2003

DGN to SDE and Back Again

Migration to a Geodatabase - SDE



Migrated to a Centralized Geodatabase Model

Client Access WIN2000

- ArcGIS 9.x / Parcel Builder (maintenance)
- ArcIMS(web)
- ArcObjects(custom application)
- ArcReader(custom application)

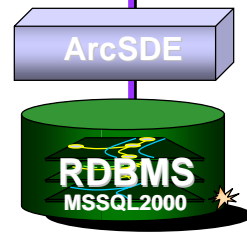
TCP/IP Network Ethernet/100

Server Process

ArcSDE is a spatial engine that allows the storage and management of spatial data with other business data.

Centralized Database

The spatial data replaces the 30,000 + vector files with one database located on one file server. This model is a more efficient manor of housing the spatial data.

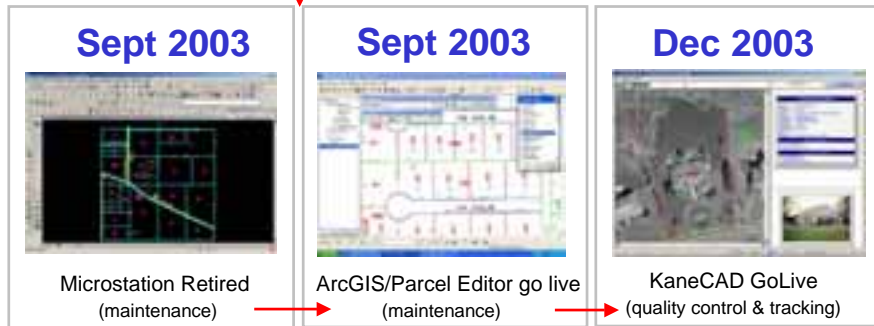


2003

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Convert from DGN to SDE

DGN to SDE





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DGN to SDE and Back Again

Custom GIS Application Development

Property Information EnterpriseGIS / ArcIMS KaneGIS MobileGIS / MapObjectsLT

2001	 <p>KaneCAD Cadastral Quality Control / ArcObjects</p>	2003
2003	 <p>KaneCADr Cadastral Viewer / ArcReaderControl</p>	2004


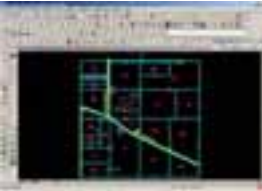
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DGN to SDE and Back Again

Convert SDE back to DGN

SDE to DGN

Sept 2003	Sept 2003
 <p>ArcGIS - SDE</p>	 <p>Microstation - DGN</p>

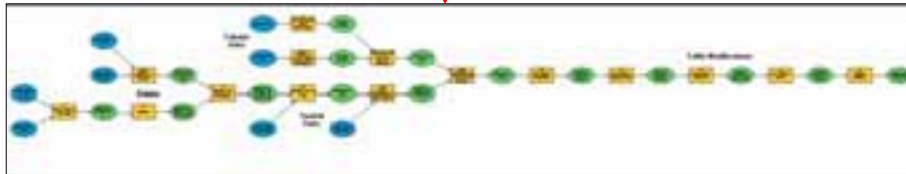
SDE to DGN

Even before we moved all of the maintenance of the Cadastral to the ESRI's products we were assured that it would be a snap to export from SDE back to DGN again for those few die hard DGN users.

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DGN to SDE and Back Again
SDE Lines back to DGN – No Problem

Model Builder



SDE Lines to DGN

My GIS Lead was able to create a model that exports all of the SDE Cadastral line work to individual SHP files based on line types. A simple **Export to CAD** is then used to complete the export to DGN. The individual attributes of each file is then set using Microstation.

DGN to SDE and Back Again
SDE Annotation back to DGN

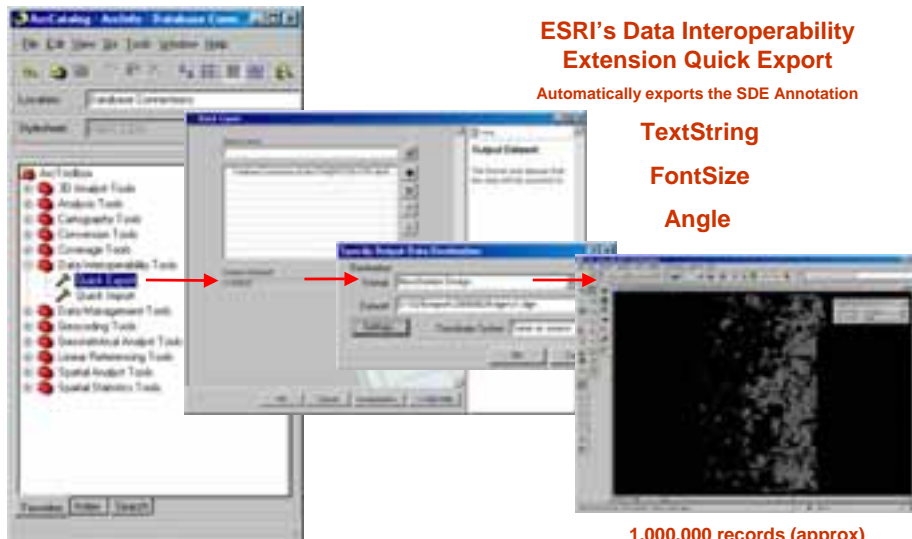
**ESRI's Data Interoperability
 Extension Quick Export**

Automatically exports the SDE Annotation

TextString

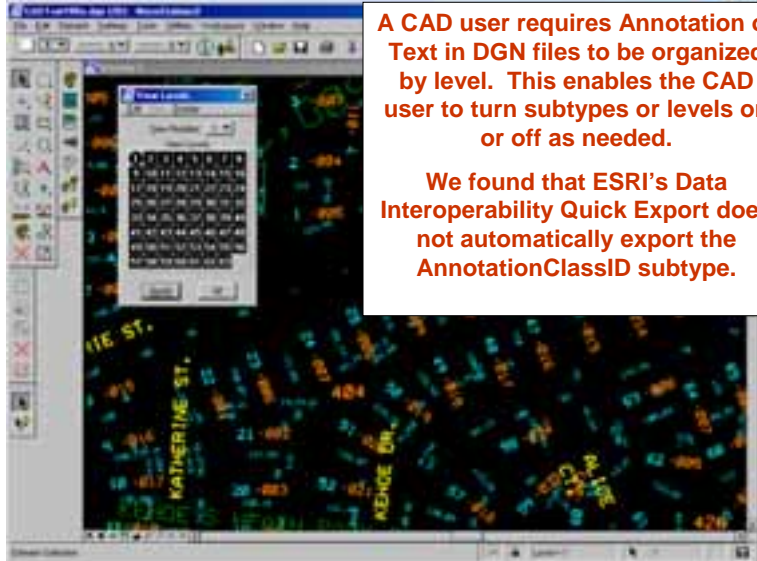
FontSize

Angle



1,000,000 records (approx)

DGN to SDE and Back Again
SDE Annotation to DGN – A Problem



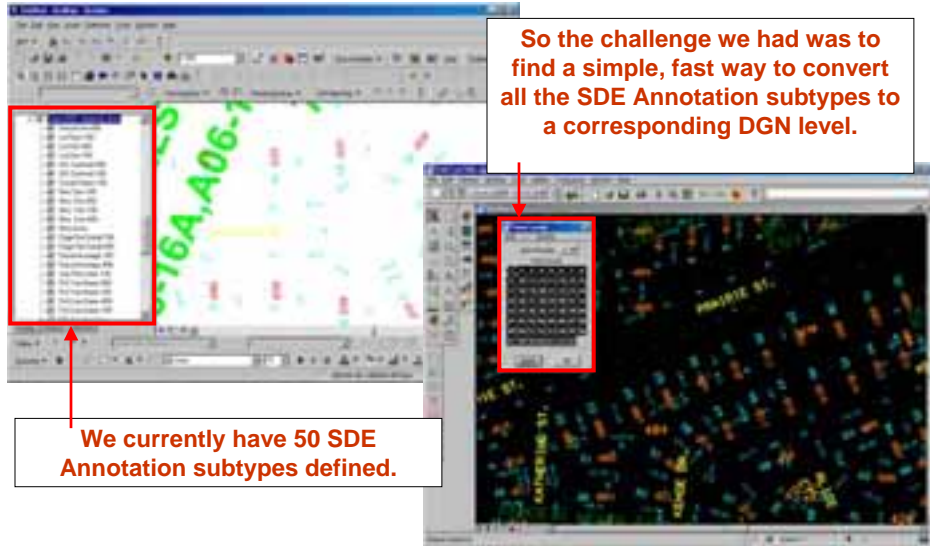
A CAD user requires Annotation or Text in DGN files to be organized by level. This enables the CAD user to turn subtypes or levels on or off as needed.

We found that ESRI's Data Interoperability Quick Export does not automatically export the AnnotationClassID subtype.

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DGN to SDE and Back Again
SDE Annotation back to DGN – The Challenge



So the challenge we had was to find a simple, fast way to convert all the SDE Annotation subtypes to a corresponding DGN level.

We currently have 50 SDE Annotation subtypes defined.

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DGN to SDE and Back Again SDE Annotation back to DGN – The Solution

AnnotationClassID

Annotation Text String

OBJECTID	FeatureID	ETID	AnnotationClassID	Element	SymbolID	Status	TEXTSTRING
1	-HUB-	-HUB-	Condo Name 100	Hub		0	DEPHAT INDUSTRIAL CONDO
2	-HUB-	-HUB-	Condo Name 100	Hub		0	HUNTLEY INDUSTRIAL BUILDING CONDO
3	-HUB-	-HUB-	Condo Name 100	Hub		0	Condo
4	-HUB-	-HUB-	Condo Name 100	Hub		0	Condo
5	-HUB-	-HUB-	Condo Name 100	Hub		0	Condo
6	-HUB-	-HUB-	Condo Name 100	Hub		0	MARSHFIELD INDUSTRIAL CONDO
7	-HUB-	-HUB-	Condo Name 100	Hub		0	MARCADEA TERRACE CONDO
8	-HUB-	-HUB-	Condo Name 100	Hub		0	OLBERTO INDUSTRIAL DISTRICT CONDO
9	-HUB-	-HUB-	Condo Name 100	Hub		0	Condo
10	-HUB-	-HUB-	Condo Name 100	Hub		0	Condo
11	-HUB-	-HUB-	Condo Name 100	Hub		0	LEONARD AIRPORT
12	-HUB-	-HUB-	Condo Name 100	Hub		0	HANCOCK TRAILBLAZER 4 CONDO
13	-HUB-	-HUB-	Condo Name 100	Hub		0	Condo

We determined all it would take would be to find a way to pass the unique AnnotationClassID during the Data Interoperability Quick Export. Doing this would give the text the same unique subtype in the DGN file.

DGN to SDE and Back Again SDE Annotation back to DGN – The Solution

AnnotationClassID

Annotation Text String

1. Copying the production annotation file to a temporary file.
 2. Right Clicking the TEXTSTRING column.
 3. Selecting the Calculate Values function.
 4. Concatenating AnnotationClassID with TextString field.

Note: The TextString field is automatically passed during the Data Interoperability Quick Export.

DGN to SDE and Back Again
SDE Annotation back to DGN – The Solution

AnnotationClassID

Annotation Text String

OBJECTID	FeatureID	ZOrder	AnnotationClassID	Element	SymbolID	Status	TEXTSTRING
1	-16A	-16A	Condo Name 100	Block	0	0	(S) BERNAT INDUSTRIAL CONDO
2	-16A	-16A	Condo Name 100	Block	0	0	(S) HUNTLEY INDUSTRIAL BUILDING CONDO
3	-16A	-16A	Condo Name 100	Block	0	0	(S) Condo
17	-16A	-16A	Condo Name 100	Block	0	0	(S) Condo
18	-16A	-16A	Condo Name 100	Block	0	0	(S) MARRING INDUSTRIAL CONDO
19	-16A	-16A	Condo Name 100	Block	0	0	(S) ARCADEA TERRACE CONDO
20	-16A	-16A	Condo Name 100	Block	0	0	(S) GILBERTS INDUSTRIAL DISTRICT CONDO
21	-16A	-16A	Condo Name 100	Block	0	0	(S) Condo
22	-16A	-16A	Condo Name 100	Block	0	0	(S) Condo
							(S) LANGRIS AIRPORT
							(S) THIER TRAILS UNIT 4 CONDO
							(S) Condo
							(S) Condo
							(S) Condo
							(S) Condo
							(S) Condo
							(S) Condo
							(S) Condo

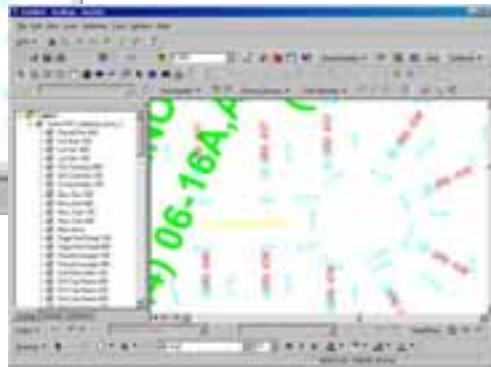
The TextString field now includes the unique AnnotationClassID and will be automatically exported during the Data Interoperability Quick Export.

DGN to SDE and Back Again
SDE Annotation back to DGN – The Solution

After Concatenation

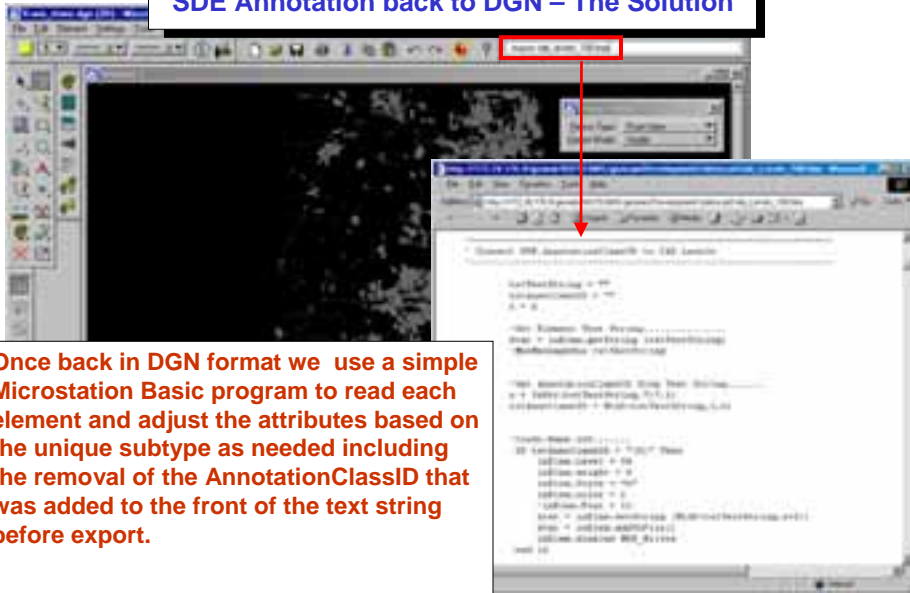


Before Concatenation



AnnotationClassID concatenated with Annotation Text String

DGN to SDE and Back Again SDE Annotation back to DGN – The Solution



Once back in DGN format we use a simple Microstation Basic program to read each element and adjust the attributes based on the unique subtype as needed including the removal of the AnnotationClassID that was added to the front of the text string before export.

DGN to SDE and Back Again Summary



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We found that it can be done using :
- ESRI's Data Interoperability Extension Quick Export.