



Esri International User Conference | San Diego, CA
Technical Workshops | July 14, 2011

Planning Enterprise Geodatabase Solutions

Charlie Wells

What is an Enterprise Geodatabase Solution?

- GIS is central to business operations, often mission critical
- Follows mainstream IT processes and standards
 - Deployed and managed like other IT systems
- Integrated with other business systems
- Multi-user, multi-department user base
- Requires a higher level of planning, integration, testing and support

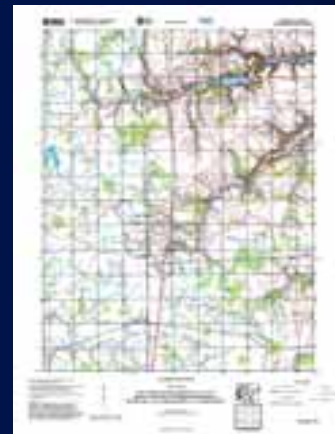


Topics to Consider

- Requirements Confirmation
- Geodatabase Design
- Geodatabase Development
- Geodatabase Quality Control
- Maintenance Approach
- Deployment
- Operations & Maintenance, Support

Requirements Confirmation

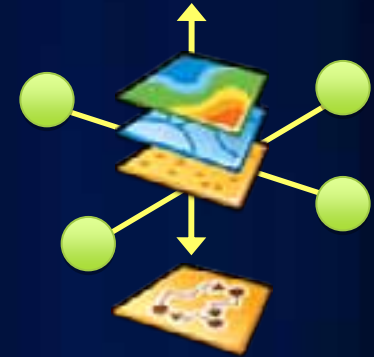
- Based on business requirements
- Content needed to support information products
- Involve stakeholders with interviews, questionnaires
- Geodatabase vs. services
- Data management strategy
- Integration with other business systems
- Database requirements drive overall system architecture



Application	Roads	Hydro	Parcels	Elevation
Basemap	X	X	X	X
Evacuation Route Planning	X	X		X
Wildfire Management	X	X	X	X
Emergency Vehicle Routing	X			

Data Management Strategy

- Geodatabase design is a part of overall data management strategy
 - Data management strategy is addressed as part of the **system architecture design** process
 - Requires analysis of requirements for data distribution, access, maintenance, versioning, and replication
 - Consider your organization's standards and other applicable standards
 - Data maintenance and stewardship



Geodatabase Design

- **Conceptual Design**
 - Identify data layers, groups
 - Spatial reference
- **Logical Design**
 - Attribute definition
 - Domains, relationships
 - Topology rules
- **Physical Design**
 - Database instances
 - Schema creation
 - Versioning, replication
 - Symbology



Geodatabase Development

- **Populating the database**
- **Data Conversion – digitization of new geospatial data**
 - Hardcopy source
 - Extraction from imagery
- **Data Migration – moving existing digital data from one format or platform to another**
 - Extract, transform, and load (ETL)
- **Data Collection – capture new data in field, other collection platforms**
 - Field data collection with mobile devices
 - Remotely sensed data – imagery, LIDAR

Geodatabase Development

ETL Approaches

ArcCatalog	<ul style="list-style-type: none">• Easy to use• Out of the Box—No additional licenses needed• Ideal for smaller migration efforts
ArcGIS Data Interoperability Extension	<ul style="list-style-type: none">• Easy to use GUI• Easy to document processes• Easy to automate for repetitive tasks• Log files created during the process used for QC• Many data transformers• Ideal for large migration efforts
Production Mapping Data Loader	<ul style="list-style-type: none">• Easy to use GUI• Easy to automate for repetitive tasks• Log files created during the process used for QC

Geodatabase Quality Control

- Quality Control
 - Quality Assurance Plan
 - Defines overall quality control approach
 - Pilot database
 - Use a significant subset or complete set of data
 - Test Plan
 - Testing tools
 - Test cases – automated, visual inspection

**ArcGIS Data
Reviewer**



Maintenance Approach

- Data maintenance strategy is essential to achieve consistent data quality
- Plan and manage geodatabase maintenance workflows built around business processes
- Quality control processes, tools
- Defining versioning specifications and workflows
- Workflow management systems for handling versions
 - ArcGIS Workflow Manager (JTX)
 - ArcFM and Network Engineer (utility industry)



Deployment

- Enterprise Geodatabase Deployment Challenges

- Integration of components across multiple departments or locations
- Components from multiple vendors
- Variations in network connectivity
- Potentially disparate user community with different GIS skill levels
- Usually involves deployment in multiple environments
 - Test environment for UAT
 - Deployment to production environment
 - Regression testing

- Prepare and follow Deployment Plan



Support, Operations & Maintenance

- **User support**
 - COTS training
 - Custom training
 - On-the-job support
- **Geodatabase tuning and optimization**
 - Initial tuning
 - Performance monitoring
 - System maintenance (HW, SW)
- **Periodic reviews**
 - Clear versions
 - Tuning
 - Review workflows

www.esri.com/sessionevals

