Esri Federal User Conference

GIS: The Geographic Approach for the Nation

Mapping & Charting Solutions *(formerly PLTS)*

Production Mapping

Paul Stayert *and* ***Sherry Smith***

Esri DC Office

esri

Mapping and Charting Solutions *(formerly "PLTS")*

Aeronautical Solution

- *Data Models*
- *Workflows*
- *Symbol Sets*
- *Map Templates*
- *Validation Rules*

Defense Mapping

- *Data Models*
- *Workflows*
- *Symbol Sets*
- *Map Templates*
- *Validation Rules*
- *MGCP, I&E editing*

Nautical Solution

- *Data RuModels*
- *Workflows*
- *Symbol Sets*
- *Map Templates*
- *Validation Rules (incl S-58)*

Production Mapping Solution (PM)

Data Loader

Workflow Manager (WMX)

Task Assistant Manager (TAM)

Data Reviewer

Enhanced Editing Tools

Cartographic Production Tools

Resource Center *(online)*

Product Library

Origin and Nature

of Mapping & Charting Solutions (PLTS)

- Emerged from actual project work.

- Relatively recent as polished “COTS” offerings.

- Far less awareness among potential users and even within Esri.
(though already successful with thousands of users.)

- Multiple tools/names, recently changed names, complex purchase options.

But once understood and implemented…

can transform data and map production operations.

Introducing Mapping & Charting Solutions *(PLTS)*

For all of its apparent complexity, there are just three basic solution themes. We'll start with those, and then identify names, purpose, and value of individual components.

The three basic solution themes are:

- **Workflow Management**
- **Data Quality Control**
- **Map Production**

…and supporting tools *(Doc Mgmt, Enhanced Editing)*

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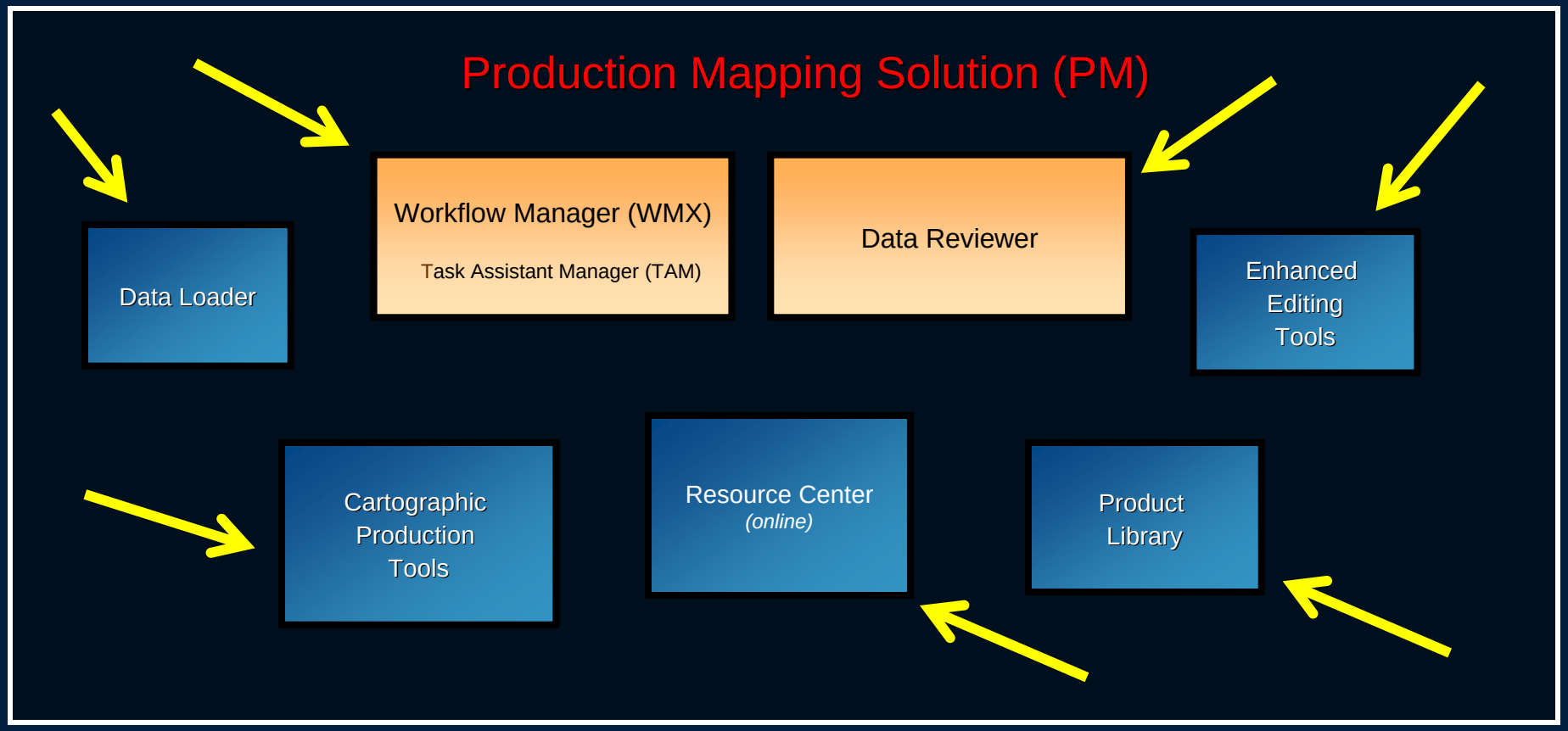
Resource Center *(online)*

Product Library

- Workflow Management *(macro and micro)*
- Data Quality Control
- Map Production

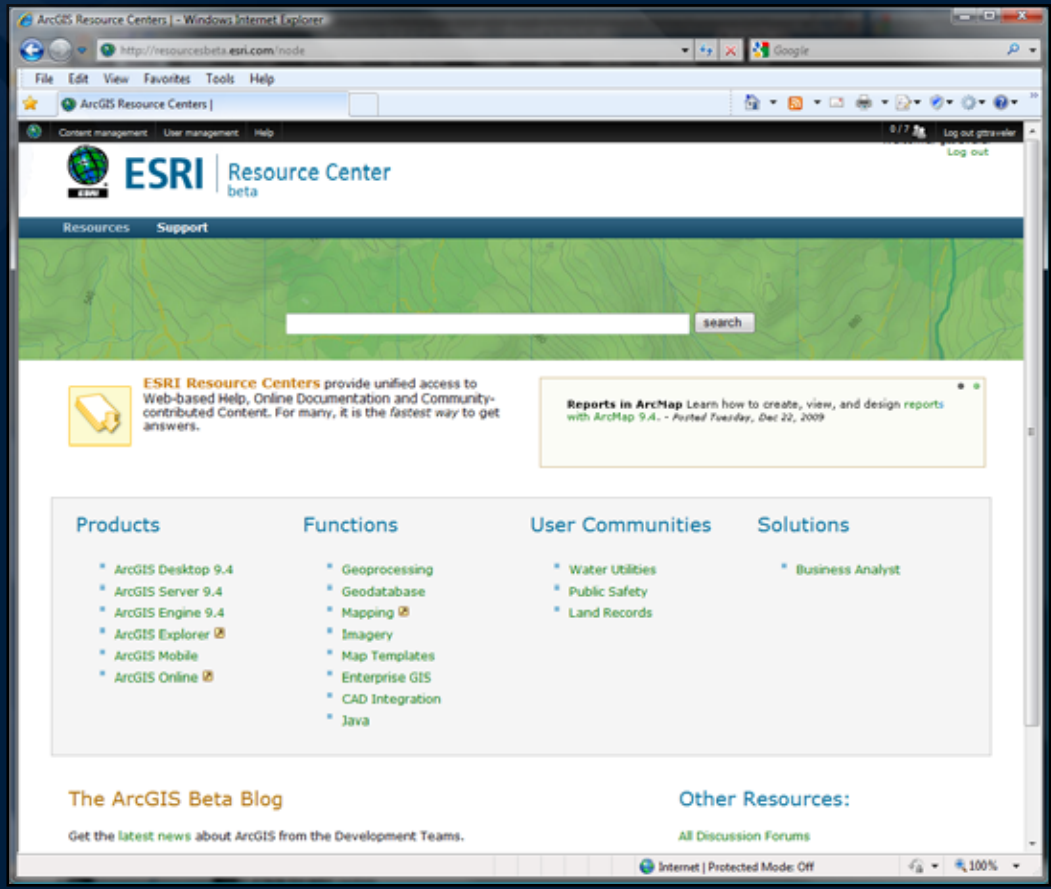
…. and Supporting Tools *(Doc Mgmt & Enhanced Editing*



Production Mapping Templates

- Include
  - Quality rules
  - Workflows
  - Map and chart documents
  - Symbols
  - COP Viewer
  - Mobile Applications
  - Etc …
- Complement industry templates
- Deliver existing industry data models
- Expand industries supported
  - Transportation
  - Water/Waste Water
  - Pipeline
  - Wild Fire
  - Local Government
  - Etc…

Resource Center *(Online)*



Mapping and Charting Solutions *(formerly "PLTS")*

Aeronautical Solution

- *Data Models*
- *Workflows*
- *Symbol Sets*
- *Map Templates*
- *Validation Rules*
- *Feature Builder*

Defense Mapping

- *Data Models*
- *Workflows*
- *Symbol Sets*
- *Map Templates*
- *Validation Rules*
- *MGCP, I&E editing*

Nautical Solution

- *Data Models*
- *Workflows*
- *Symbol Sets*
- *Map Templates*
- *S-58 Validation*

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Cartographic Production Tools

Resource Center *(online)*

Product Library

Geospatially Aware

Workflow Management

(Workflow Manager / WMX)

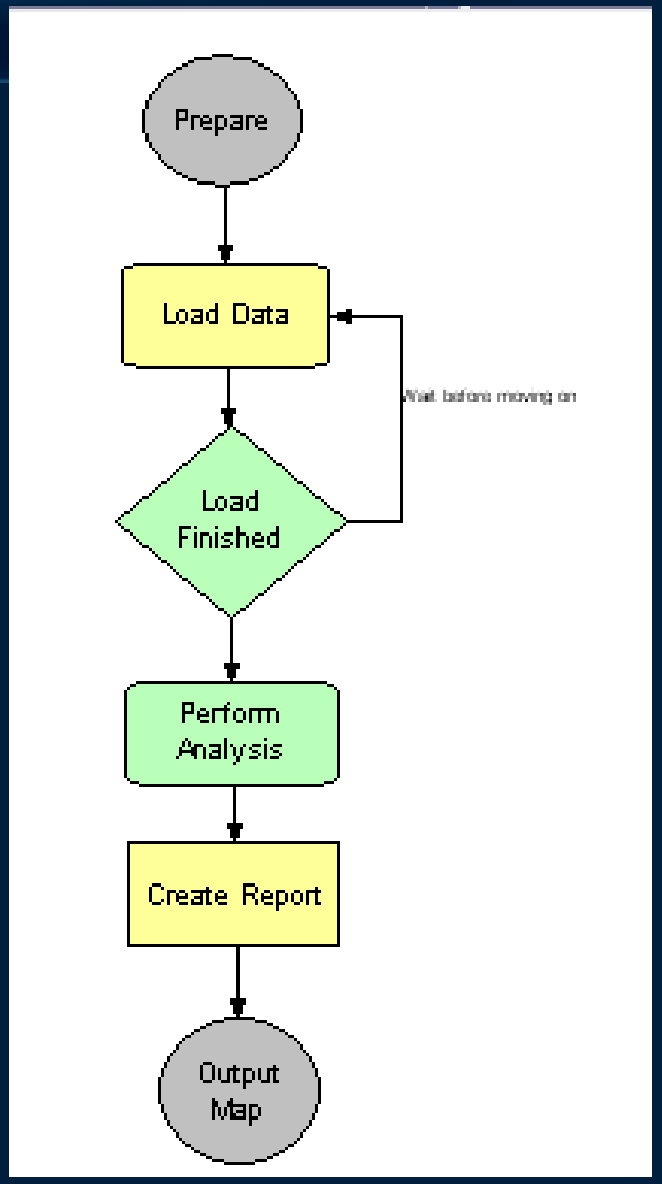
Workflow Manager / WMX

Standardize workflow to automatically launch necessary programs & processes

Create and assign units of work (jobs)

Notify users of pending work

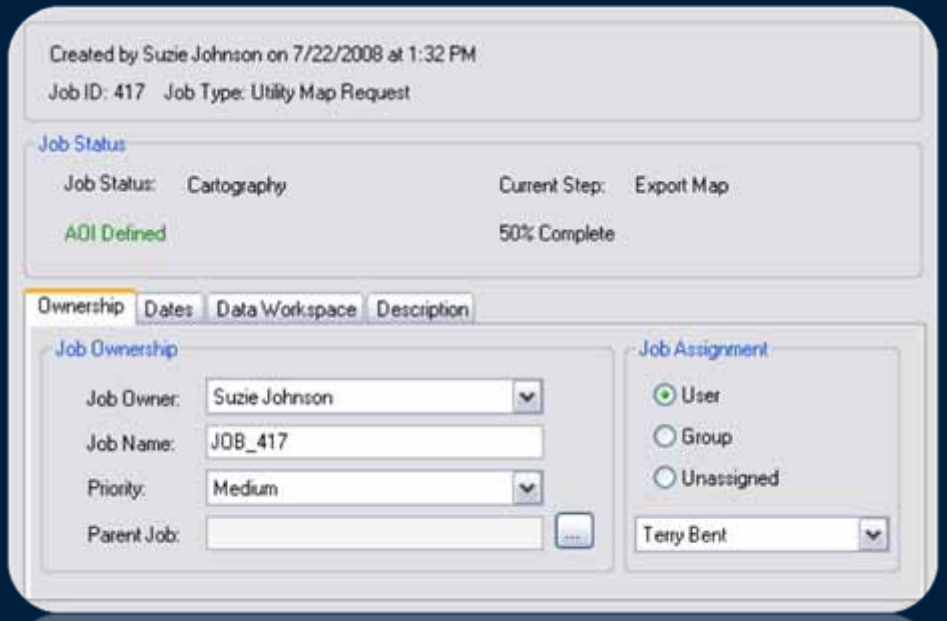
Track and manage status of work



Workflow Management - ***Job Properties***

(Workflow Manager/WMX)

- **Standard**
  - Name, due date, assignment, priority, etc.
- **Extended**
  - Custom, business specific
  - Such as parcel number, department, permit id, market territory



Workflow Management - ***Notifications***

(Workflow Manager/WMX)

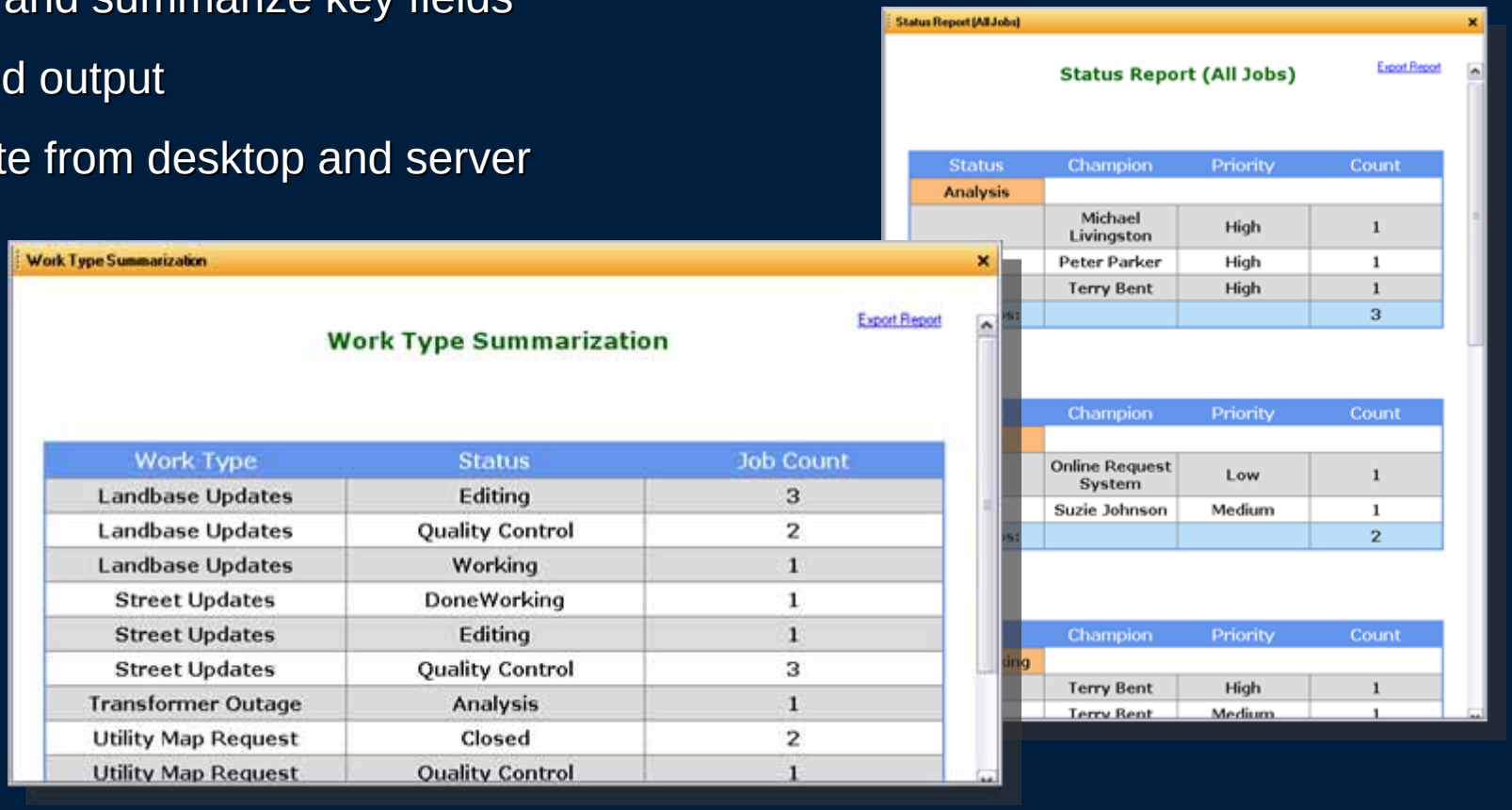
"Can I have Workflow manager send an email when something happens in the system?" - Yes.

- **Triggers**
  - Any job action
  - Workflow step
  - Data edits
- **Fully configurable system**

Workflow Management - ***Reporting***

(Workflow Manager/WMX)

- For Automated and Visual QC results
- Build simple reports about job information
- Query and summarize key fields
- Stylized output
- Execute from desktop and server



Work Type Summarization

Export Report

Work Type Summarization

Work Type	Status	Job Count
Landbase Updates	Editing	3
Landbase Updates	Quality Control	2
Landbase Updates	Working	1
Street Updates	DoneWorking	1
Street Updates	Editing	1
Street Updates	Quality Control	3
Transformer Outage	Analysis	1
Utility Map Request	Closed	2
Utility Map Request	Quality Control	1

Status Report (All Jobs)

Export Report

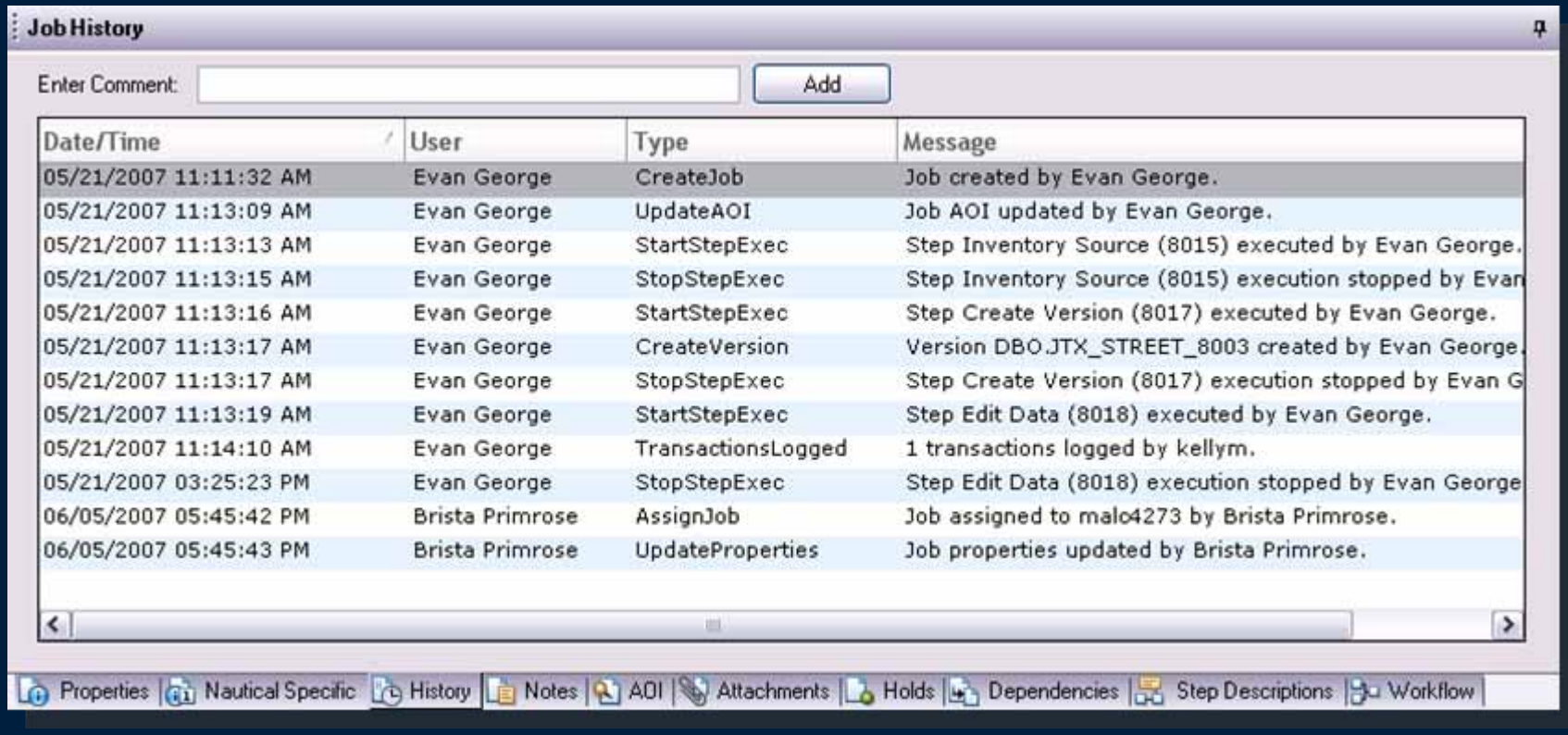
Status Report (All Jobs)

Status	Champion	Priority	Count
Analysis			
	Michael Livingston	High	1
	Peter Parker	High	1
	Terry Bent	High	1
			3
	Champion	Priority	Count
	Online Request System	Low	1
	Suzie Johnson	Medium	1
			2
	Champion	Priority	Count
	Terry Bent	High	1
	Terry Bent	Medium	1

Workflow Management - ***Job History***

(Workflow Manager/WMX)

- What's happened on this job?
- Automatically logged as user works job
- Tagged with user and date
- Supplemented with user input

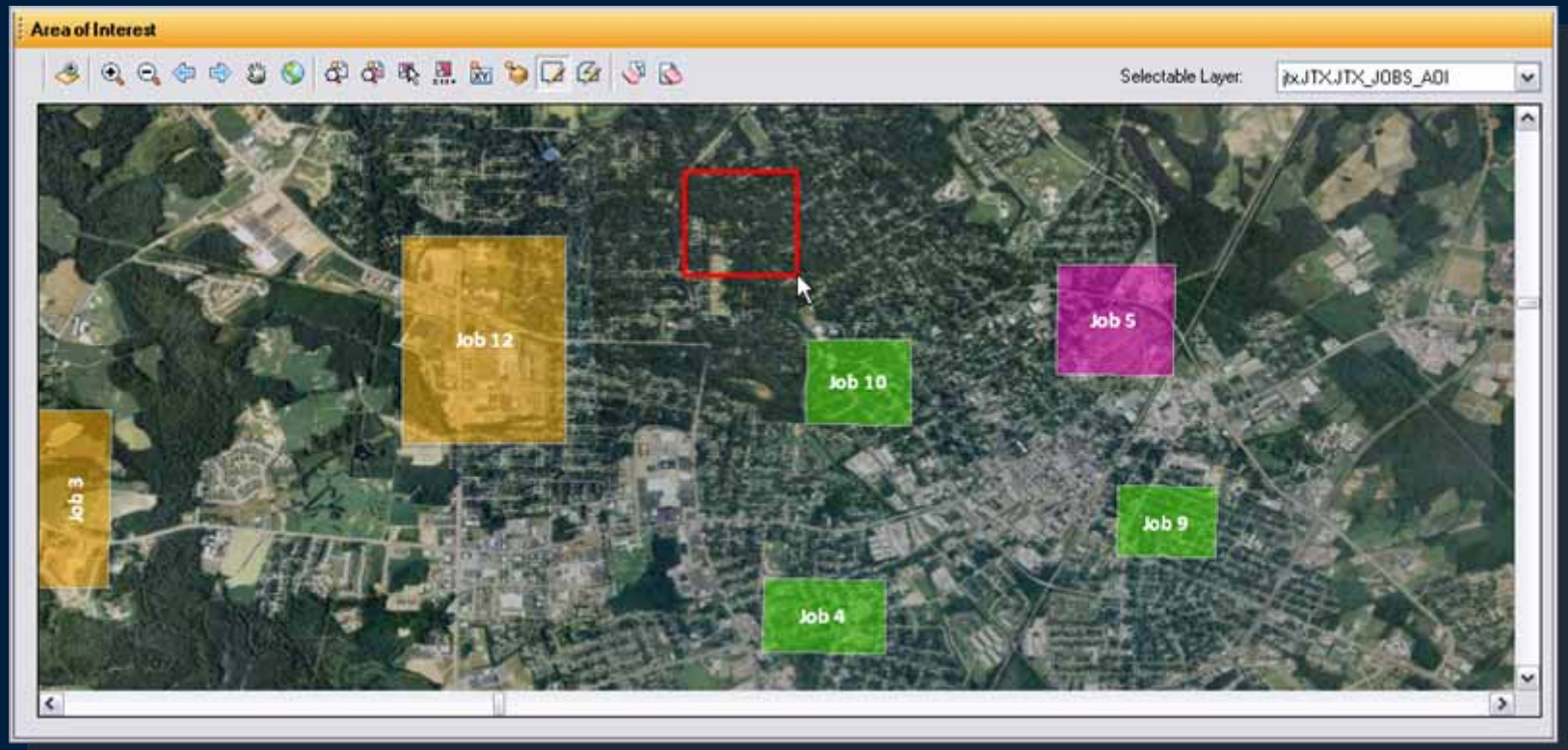


Workflow Management – ***GeoEnabled***

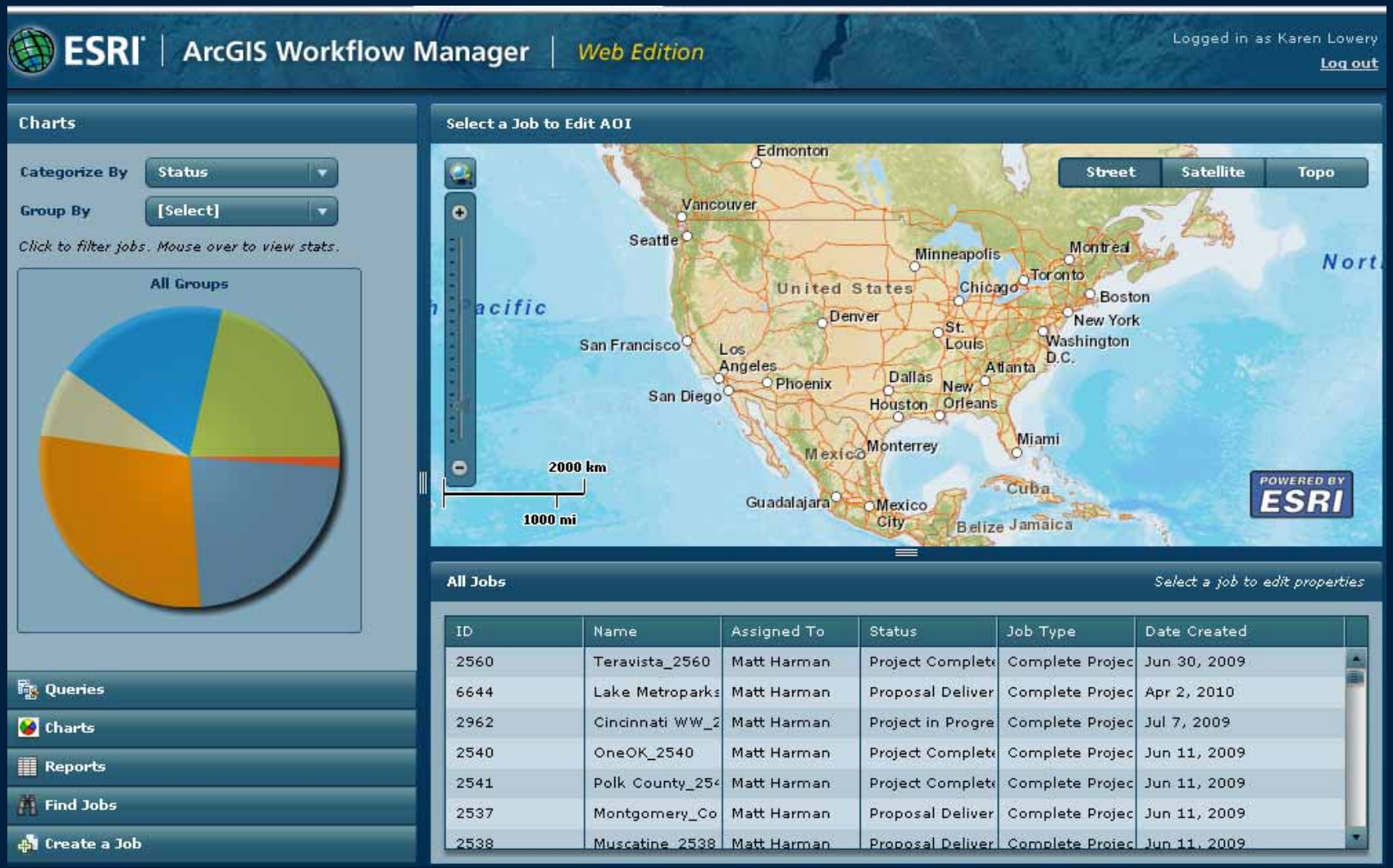
(Workflow Manager/WMX)

Defines where the work is located

- Spatial component of job
- Guide for users
- Visualization / analysis tool for managers



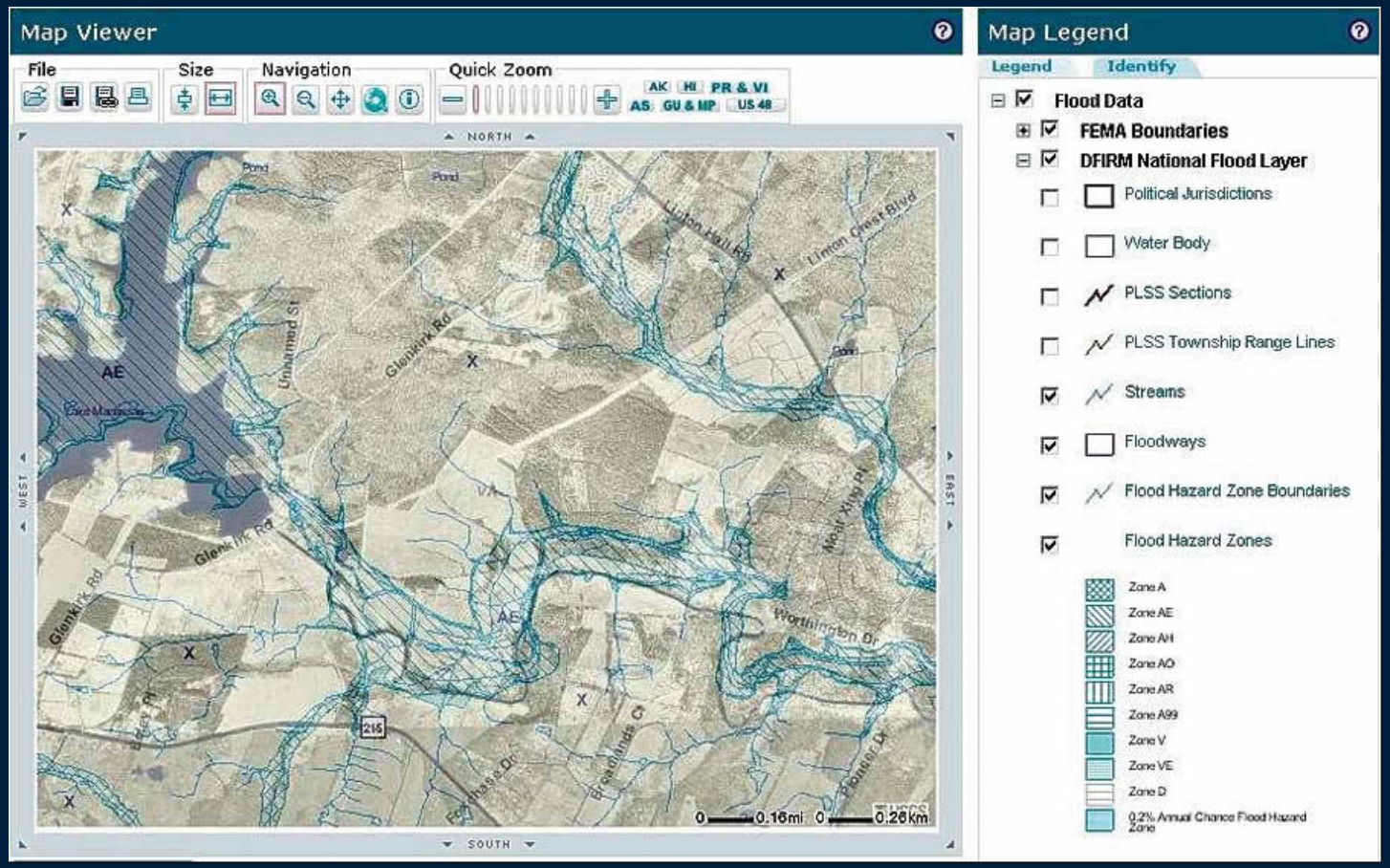
Workflow Manager/WMX - *Web Interface*



http://workflowsample.arcgis.com/wmflex/

Workflow Manager/WMX - *Success Stories*

Flood Map Modernization



“Micro” Workflow Management

(within ArcMap)

(Task Assistant Manager/TAM)

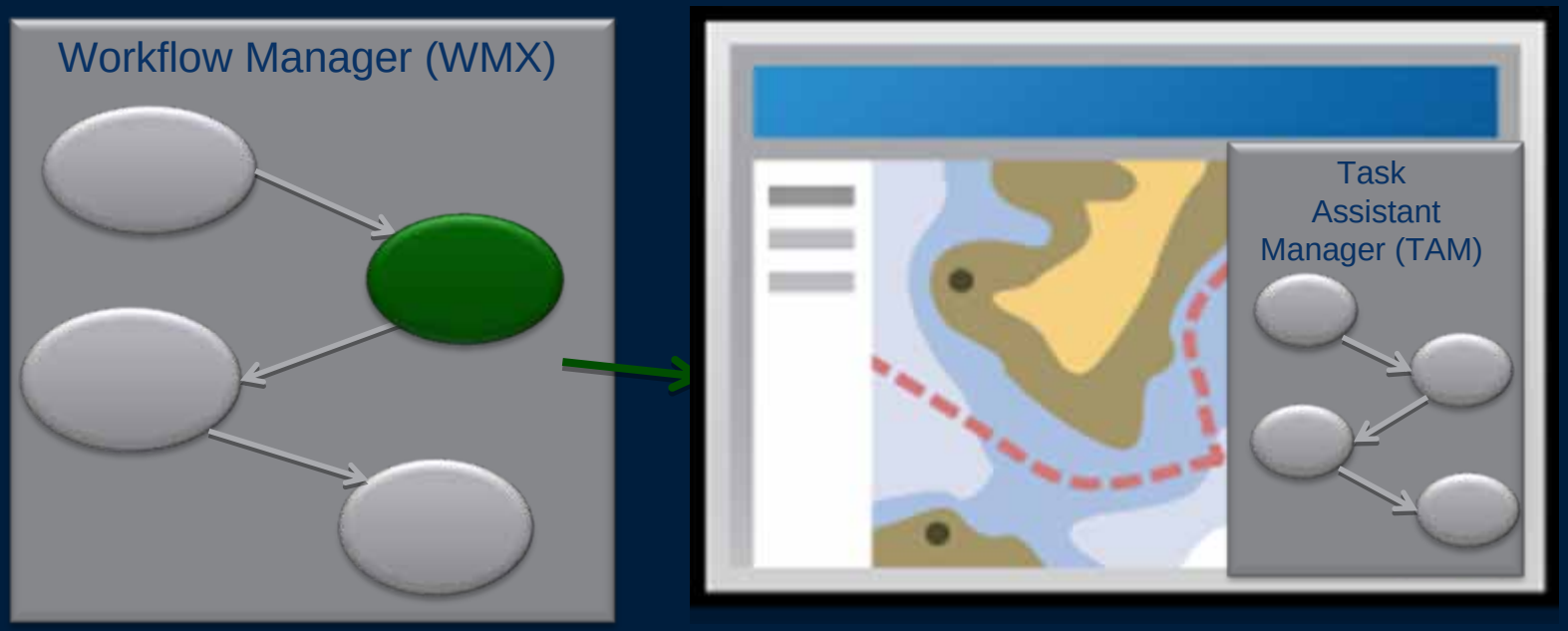
Task Assistant Manager *(TAM)*

Macro-level Workflow Management

Workflow Manager/WMX manages tasks at enterprise/operational level

Micro-level Workflow Management

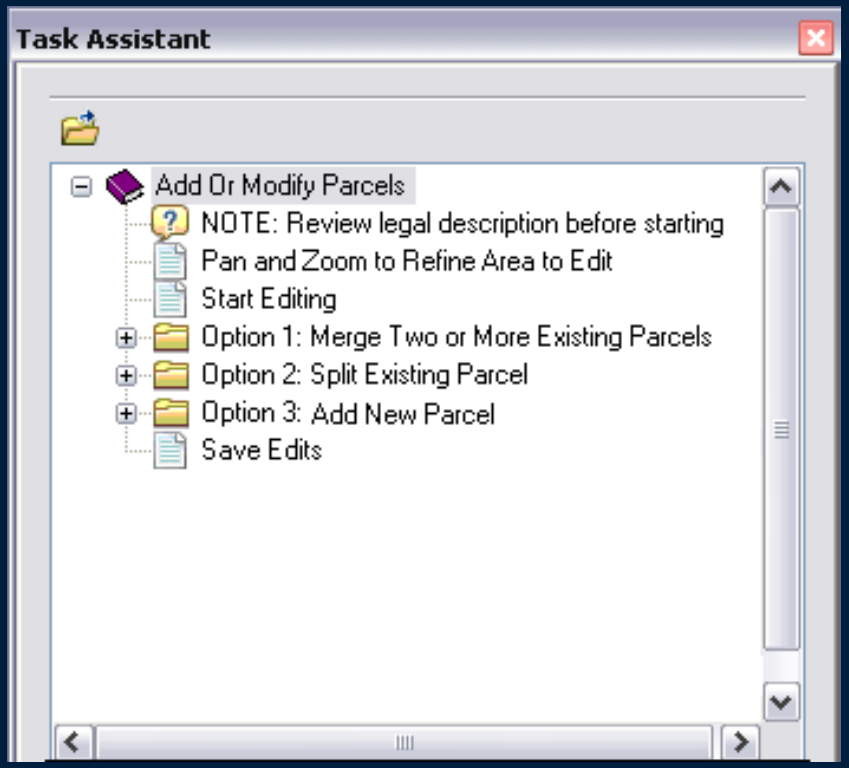
Task Assistant Manager (TAM) manages tasks inside ArcMap



Micro Workflow Management (within ArcMap)

Task Assistant Manager/TAM

- **Standardize ArcMap workflows**
  - Reduce training requirements and expense
  - Involve more staff in production
- **Combine multiple tasks into one click**
- **Implement Standardized Procedures**



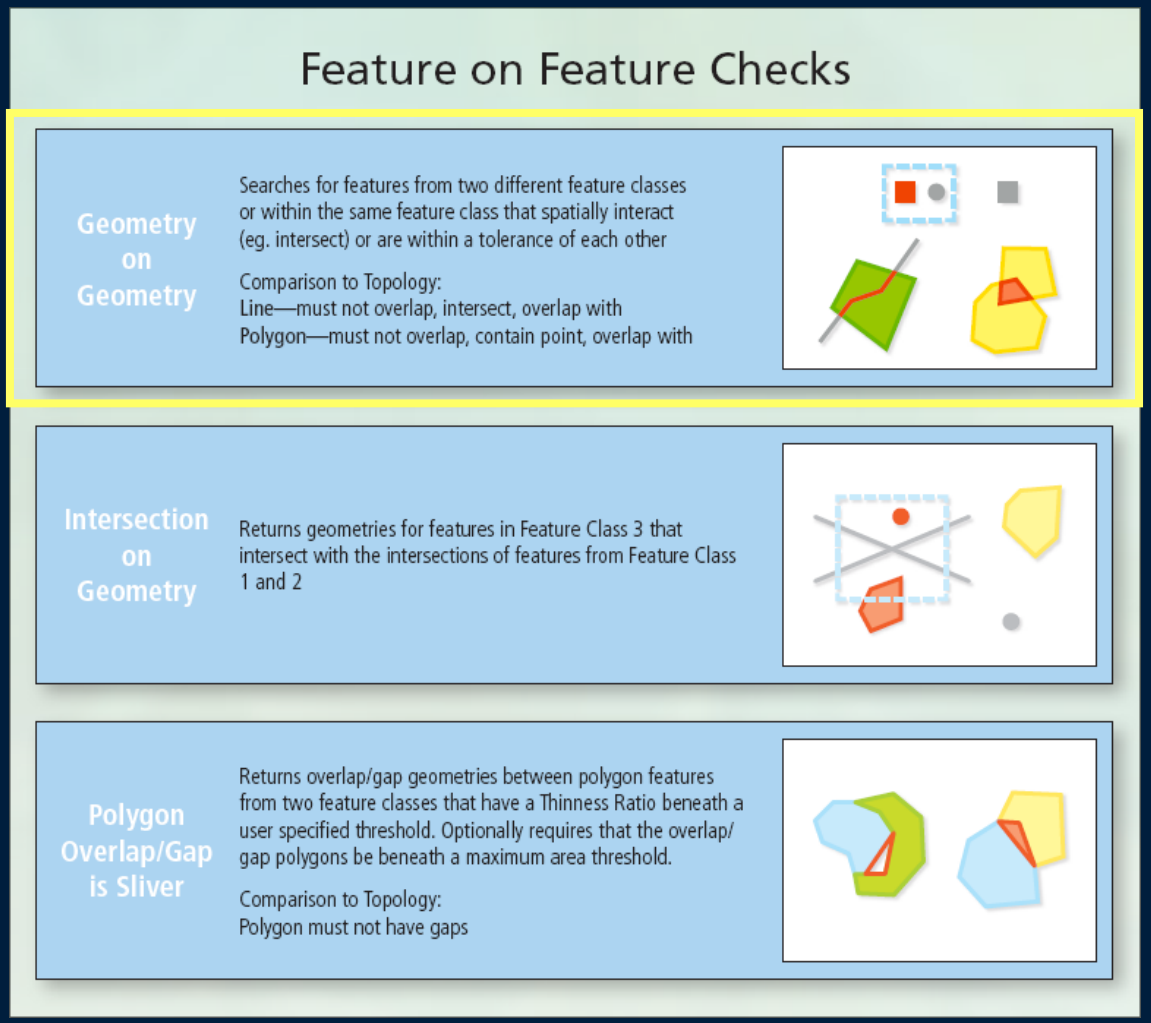
Data Quality Control

(Data Reviewer)

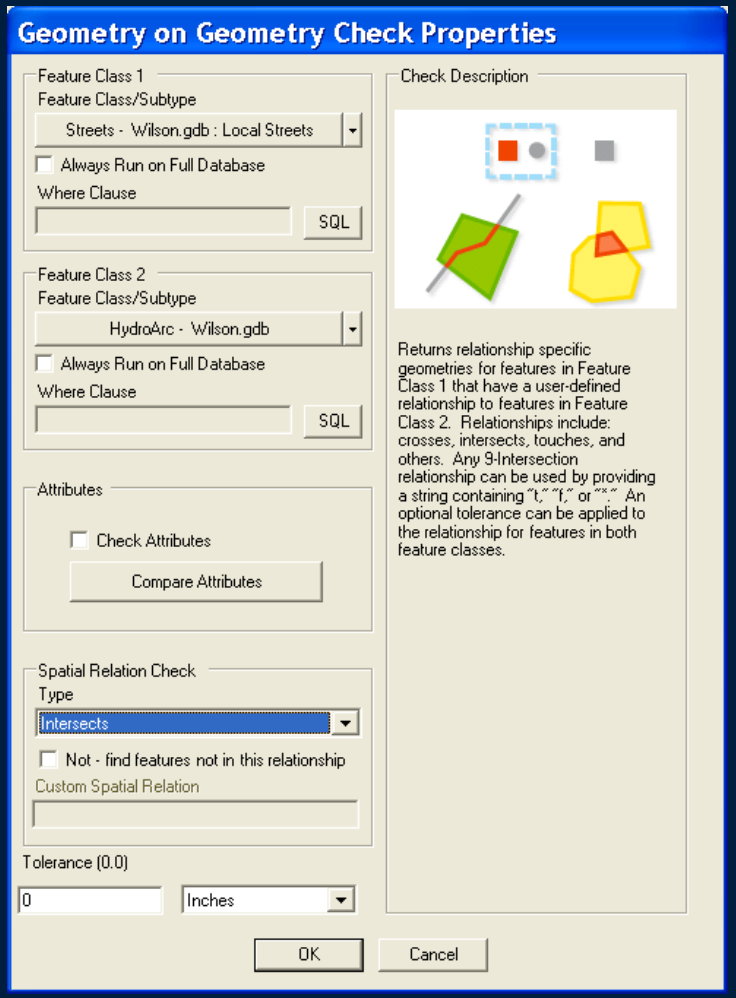
Automated Data QC for both Geometry and Attribution

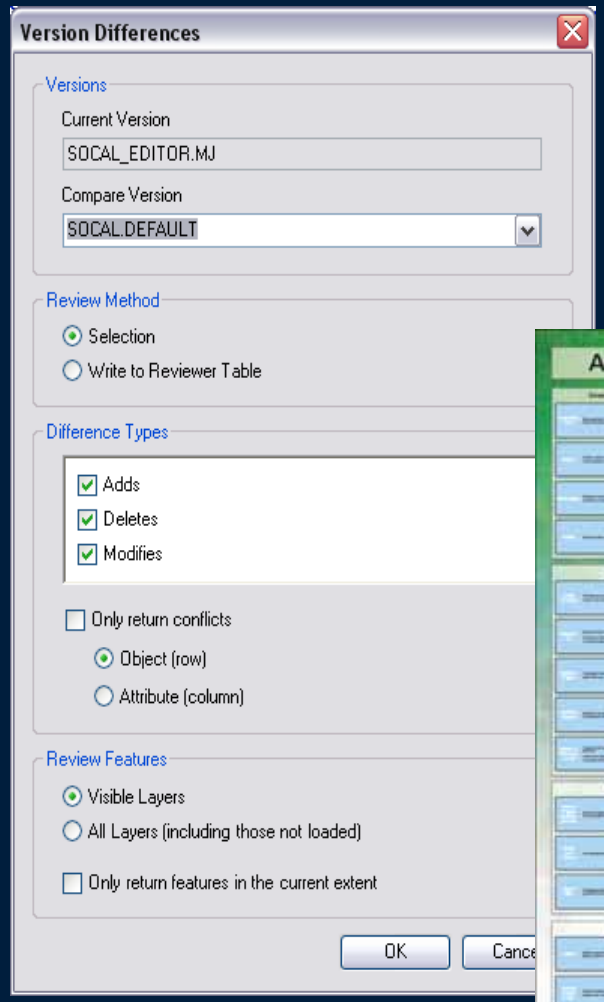
(Data Reviewer)

- Spatial Parameter Evaluation
- Default
- Feature on Feature
- Duplicate Geometry
- Topology
- Database Validation
- Z Value Checks
- Polygon Checks
- Polyline Checks
- Table Checks
- Advanced Checks



Automated Data Reviewer Checks





42 configurable data checks in 11 functional groups

Automated Validation

(Data Reviewer)

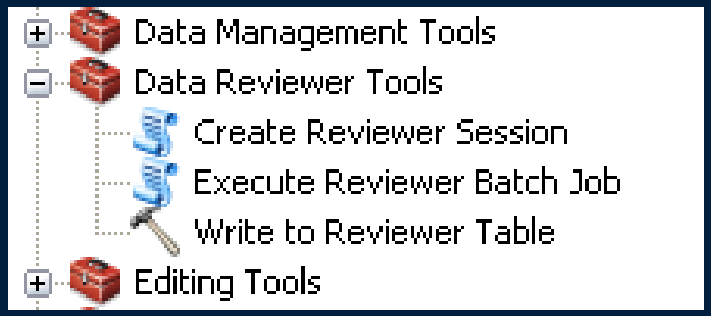
- **Batch jobs**
  - Create with Batch job Manager
  - Group of checks
    - Wide range
    - Particular theme
  - Centralized and repeatable

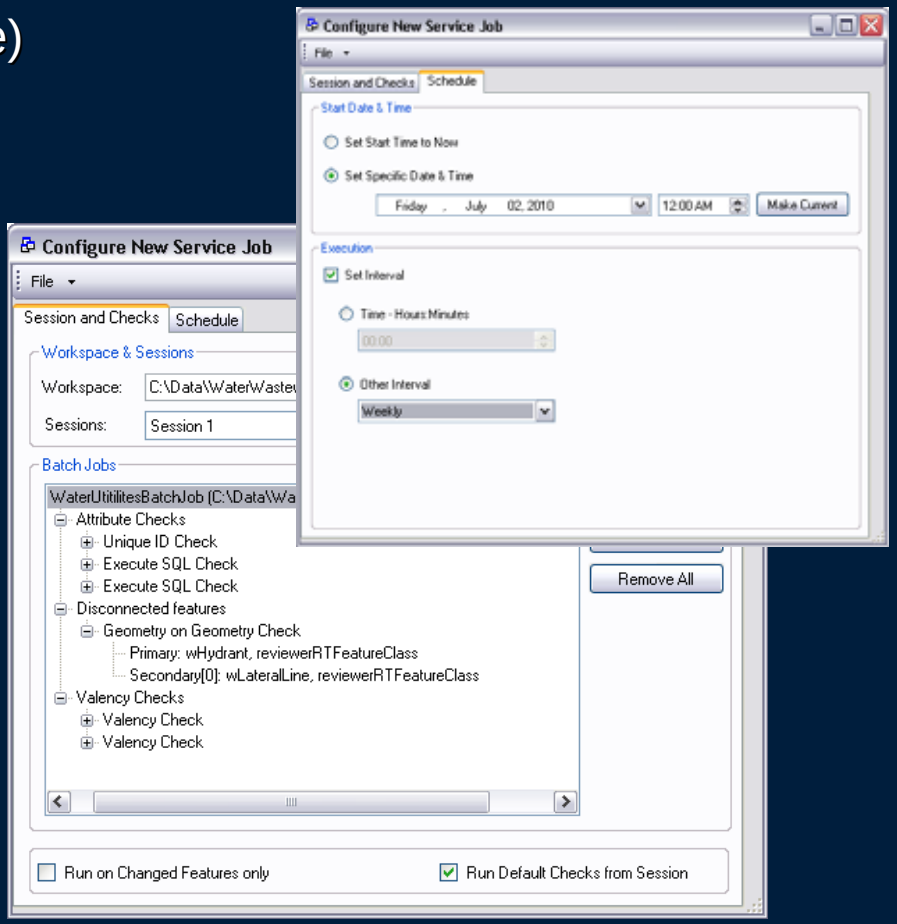
Unattended Batch Data Quality Control

Outside ArcMap session:

(Data Reviewer)

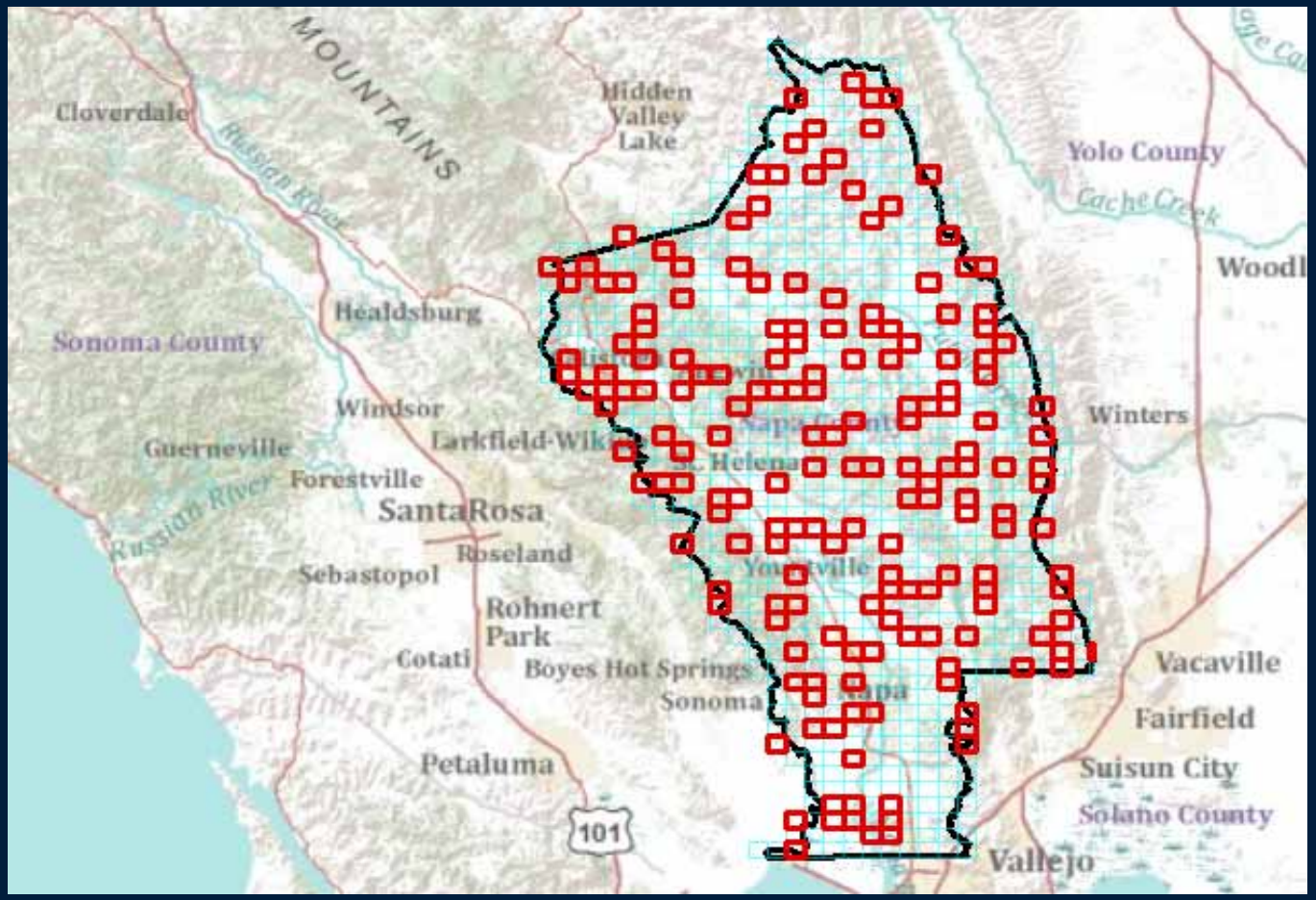
- Reviewer Service (Windows Service)
- Reviewer Console (Command Line)
- From ArcToolbox
- Within a Python script
- As Workflow Manager/WMX step





Visual QC

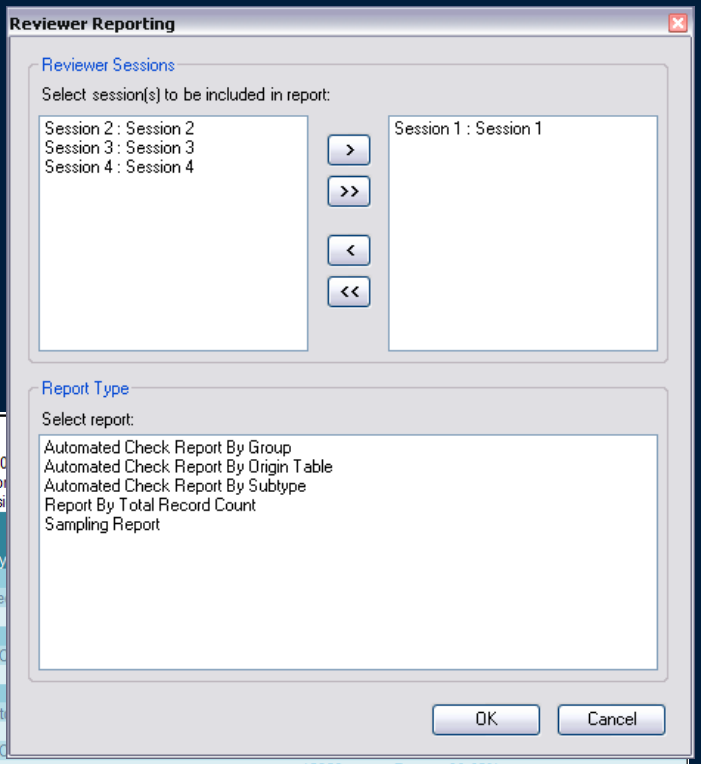
(Data Reviewer)

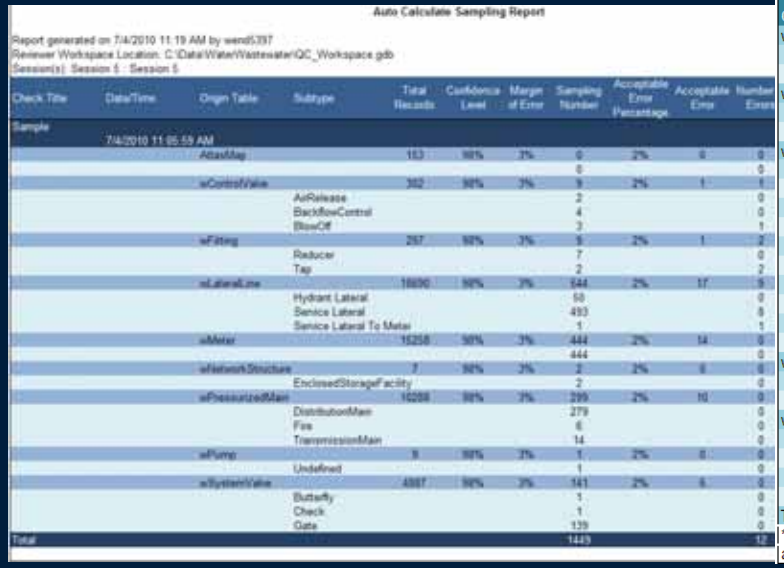


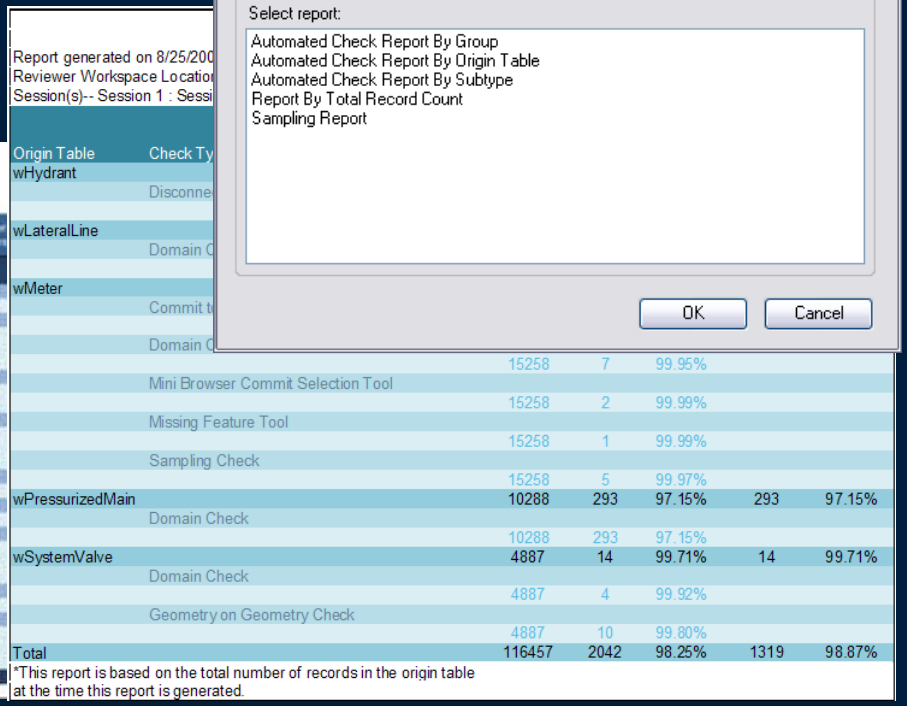
QC Error Reporting

(Data Reviewer)

- **Automated reporting of QC results**
- **Available Reports**
  - Automated Check by Origin Table
  - Automated Check by Subtype
  - Automated Check by Group
  - Total Record Count
  - Sampling







Report generated on 8/25/200
Reviewer Workspace Locatio
Session(s)-- Session 1 : Sessi

Origin Table	Check Ty					
wHydrant						
	Disconne					
wLateralLine						
	Domain C					
wMeter						
	Commit t					
	Domain C					
		15258	7	99.95%		
	Mini Browser Commit Selection Tool					
		15258	2	99.99%		
	Missing Feature Tool					
		15258	1	99.99%		
	Sampling Check					
		15258	5	99.97%		
wPressurizedMain		10288	293	97.15%	293	97.15%
	Domain Check					
		10288	293	97.15%		
wSystemValve		4887	14	99.71%	14	99.71%
	Domain Check					
		4887	4	99.92%		
	Geometry on Geometry Check					
		4887	10	99.80%		
Total		116457	2042	98.25%	1319	98.87%

*This report is based on the total number of records in the origin table at the time this report is generated.

	Automated QC	Visual QC
Pros	• Fast • Repeatable • Standardized and consistent • Objective • 100% coverage	• As subjective as needed • Better for map QC • Finding patterns • Can check for completeness
Cons	• Will not find all discrepancies • Results can be overwhelming or time consuming	• Time consuming • Difficult to standardize • Not duplicated • Subjective • May require supplemental source materials

Data Reviewer

Demonstration

QA/QC

Cartographic Production

(Cartographic Production Tools)

Cartographic Production (Cartographic Production Tools)

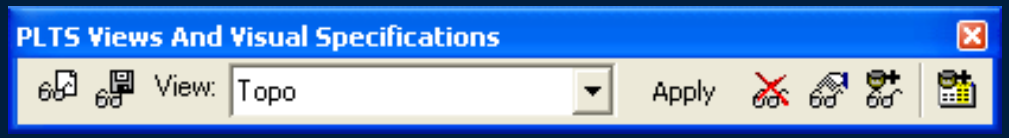
Database-driven

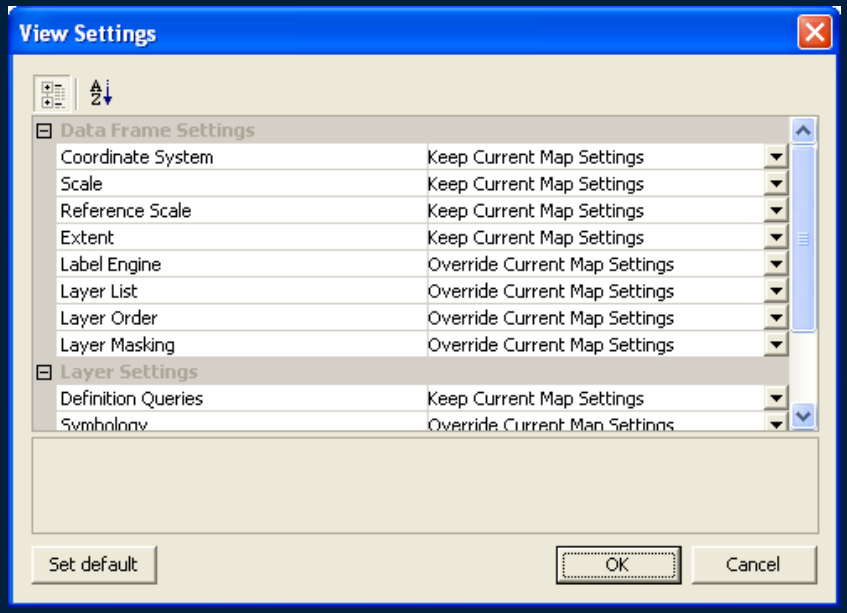
- Cartographic feature and attribute creation
- Standardizing and sharing symbology
- Page layout and element management
- Printing, exporting and publishing

Cartographic Views

(Cartographic Production Tools)

- Save/retrieve MXD, Data Frame, and Layer setting to a database location
- Stored and managed in a geodatabase
- Allow maps settings within a single document to be updated quickly

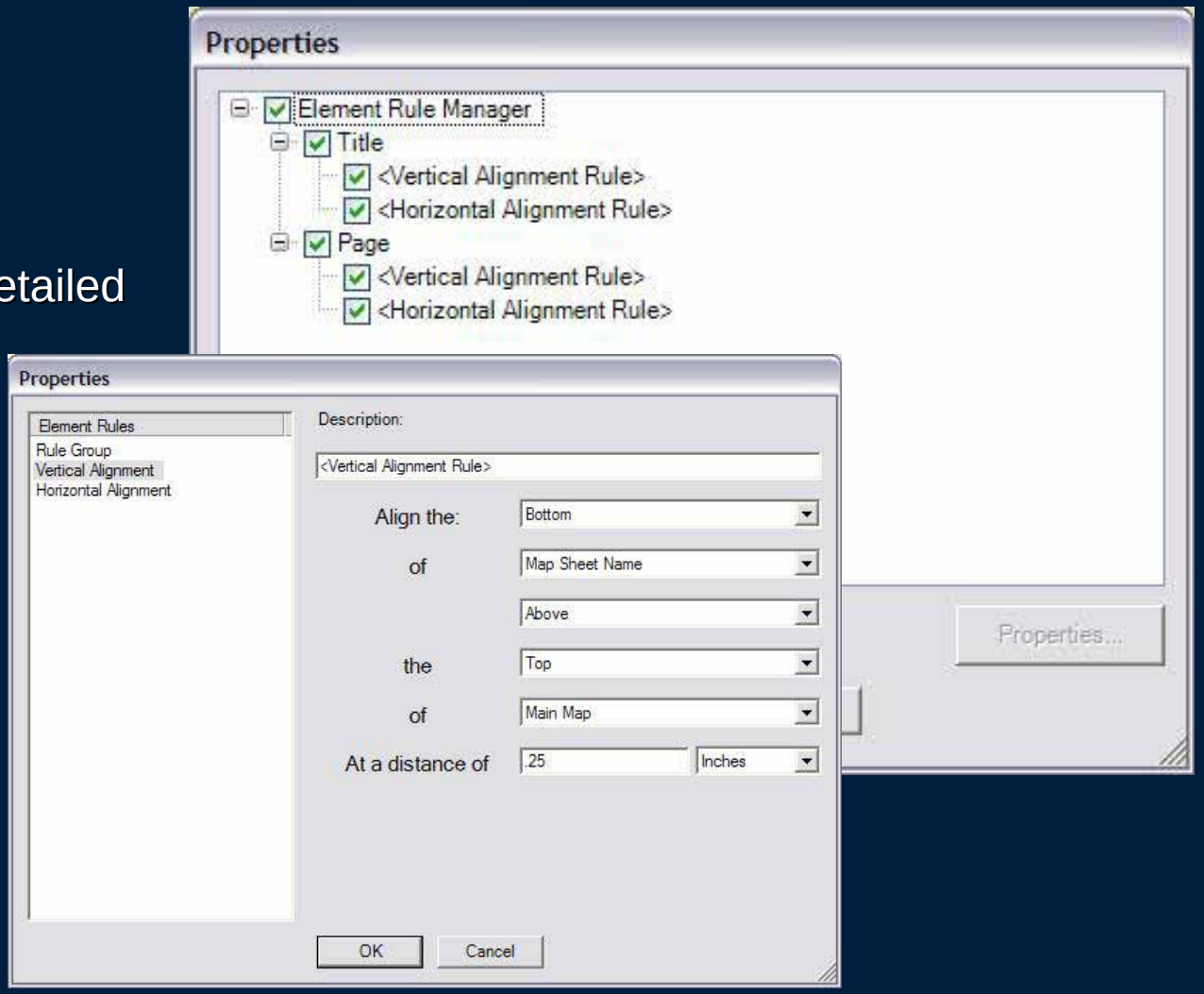




Element Placement Rules

(Cartographic Production Tools)

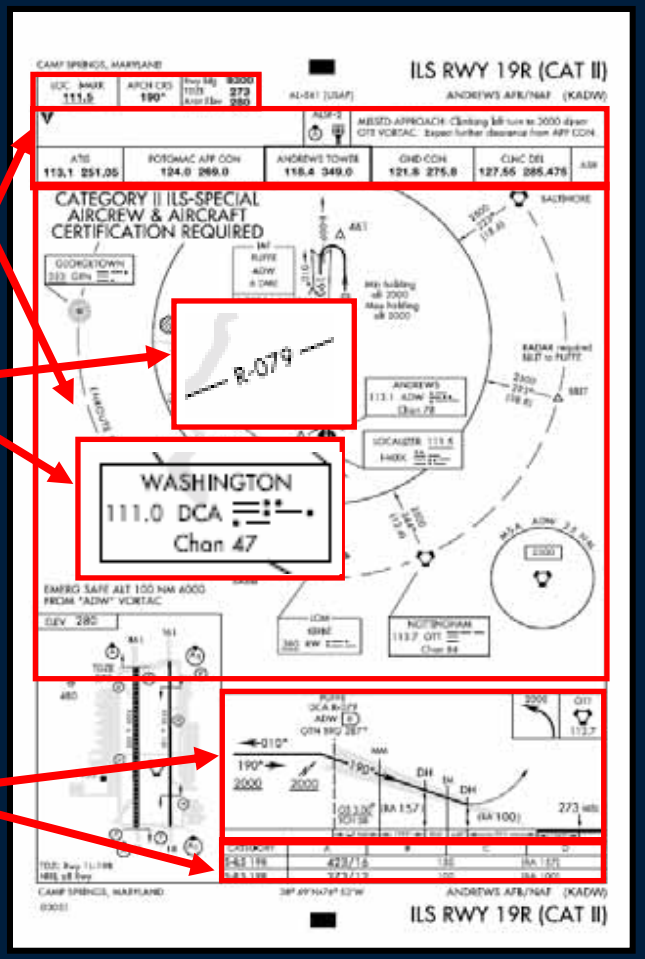
- Relative positioning of elements in map layout
  - Group rules
  - Horizontal rules
  - Vertical rules
- Useful for managing detailed map specifications



Example of Carto Production Requirements

(Aeronautical Solution)

- **Rule based feature inclusion**
  - Automated review of updates
- **Cartographic representations**
- **Annotation**
  - Database expressions
  - Maplex placement rules
- **Masking**
  - Enterprise rule base
  - Batch generation
- **Page Layout**
- **Graphic Table Element**
- **Custom Elements**
  - Profile view

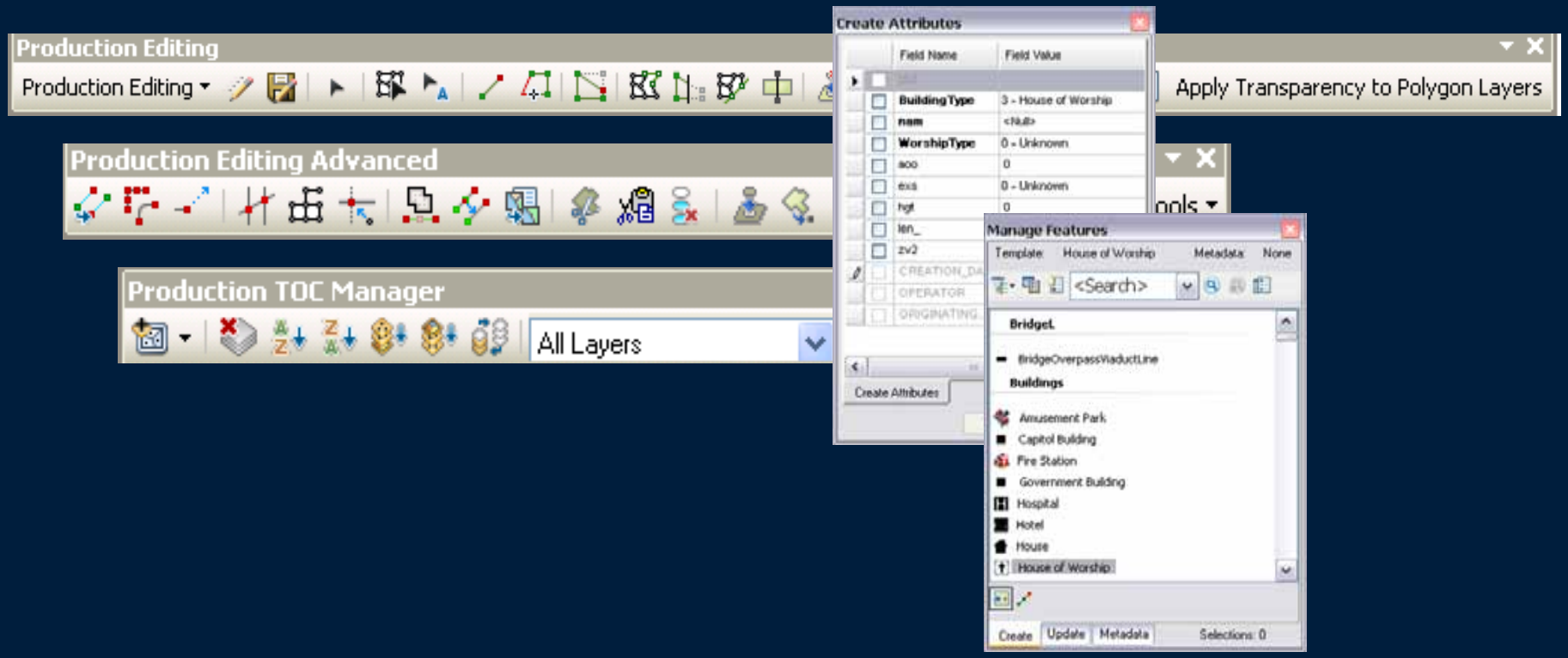


Enhanced Editing

(Enhanced Editing Tools)

Enhanced Editing (Enhanced Editing Tools)

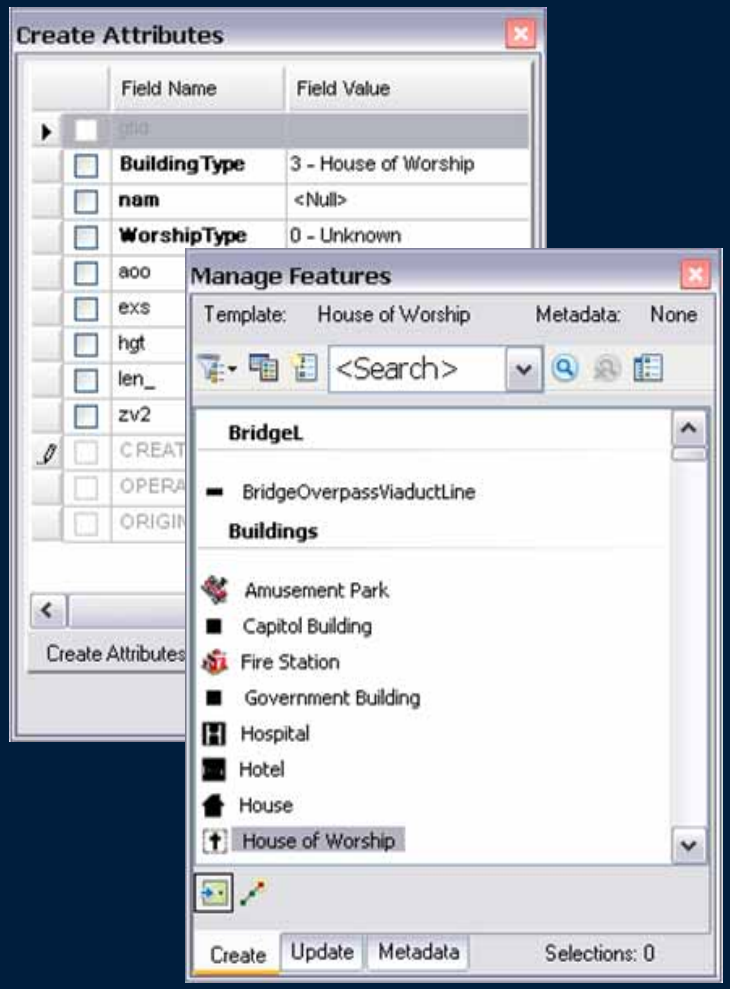
- More efficient access to existing/Arc tools
- Additional editing tools
- More efficient attribute entry and editing



Data Creation with Feature Manager and Create Attributes

(Enhanced Editing Tools)

- **Streamlined editing**
  - Minimizes the number of places a user has to go to edit attributes
- **Feature Attributes Window**
  - Layer and Schema views
  - Update feature attributes
  - Batch updates
  - Copy and paste



Enhanced Editing Tools

Demonstration

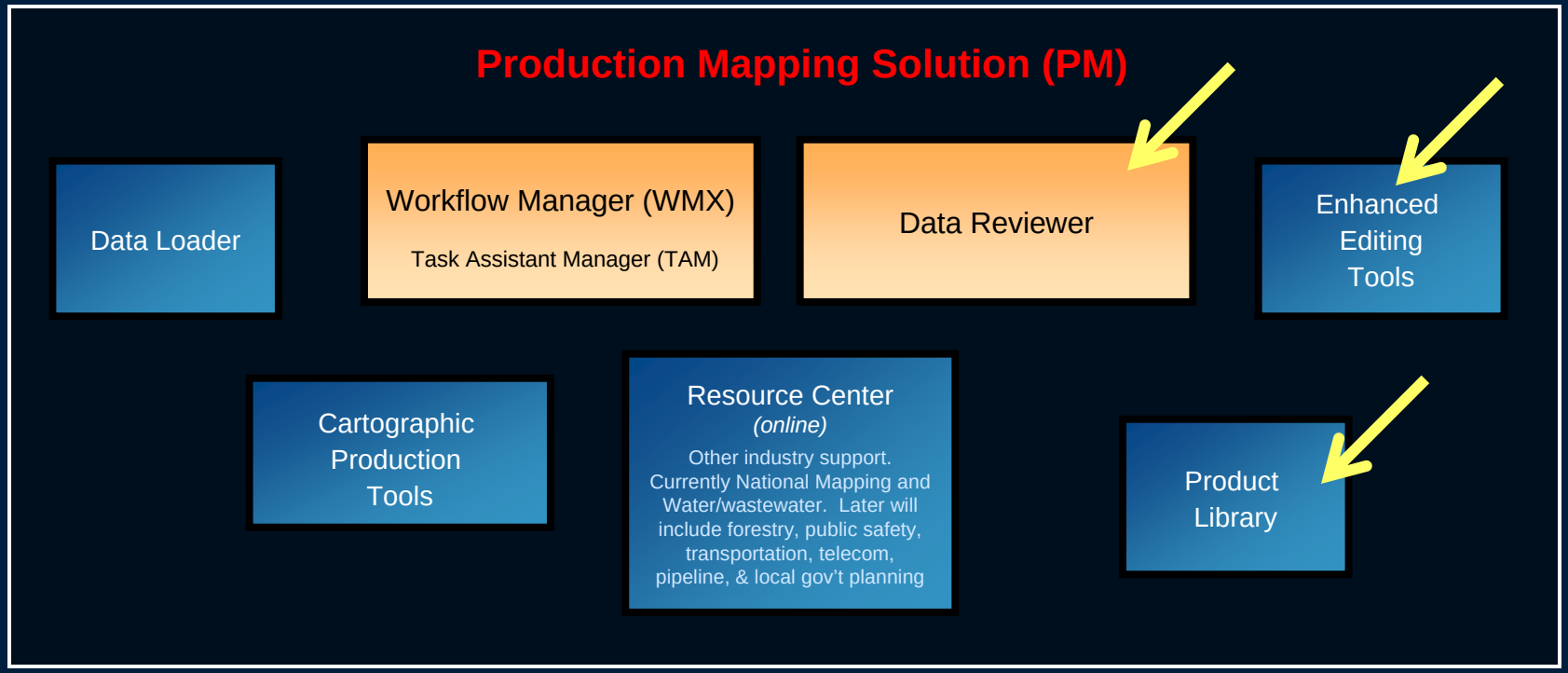
QA/QC

Production Mapping *(bundle)*

vs.

Data Reviewer *and/or* ***Workflow Manager/WMX?***

✓Example: ***On-the-Fly*** *(as it is entered) Data Validation*



GeoEnabled

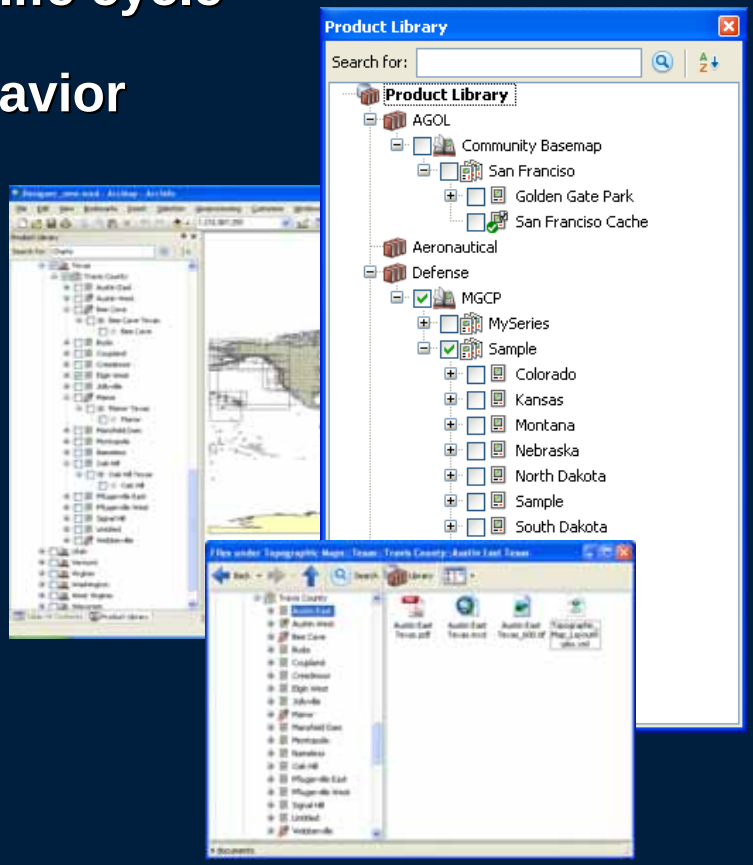
Document Management

(Product Library)

GeoEnabled Document Management

(Product Library)

- **Support for entire production life cycle**
- **Centralized information & behavior**
  - Data editing configurations
  - Quality control rules
  - Carto specifications
  - Output / publish
- **Product Management**
  - Multi-user permission control
  - Version management
  - Check in / checkout

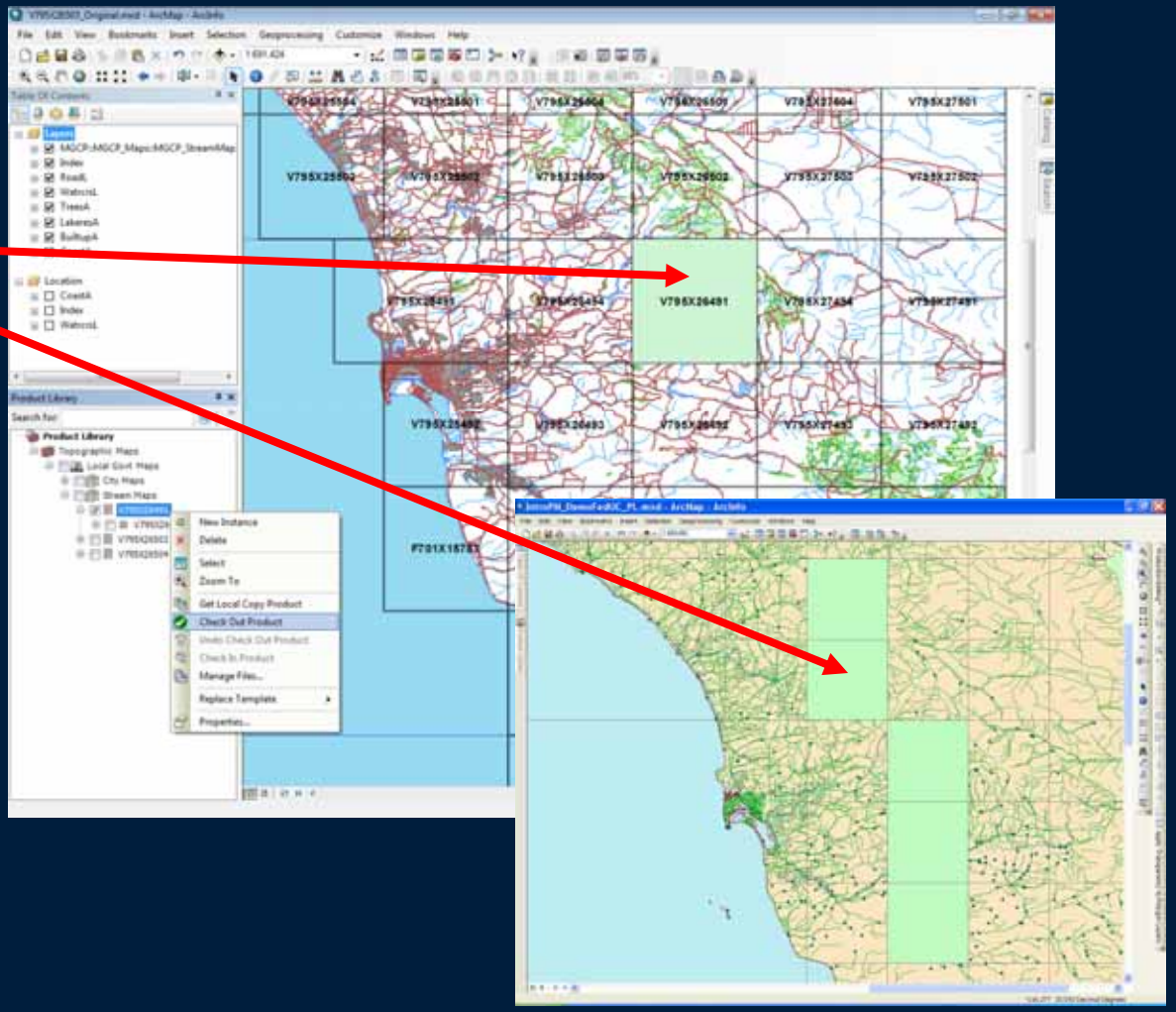


GeoEnabled Document Management

(Product Library

Manage documents based on location

(in addition to traditional references such as project names, numbers, folders, etc.)

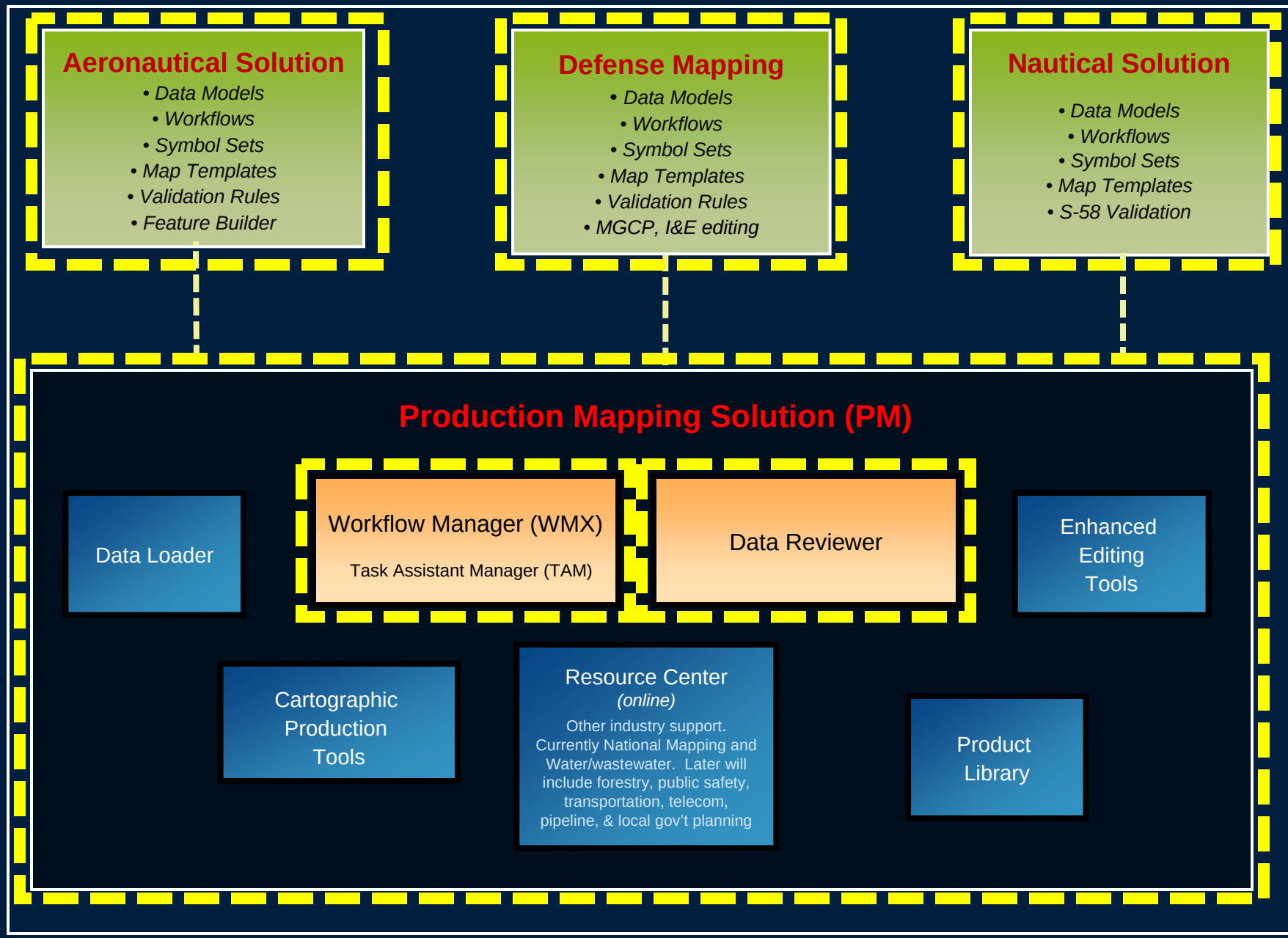


Product Library

Demo

Store and Manage

Mapping and Charting Solutions *(formerly "PLTS")*



Esri DC - based Mapping & Charting Solutions *(PLTS)* Support

- **Training (DC Learning Center)**

  (All M&CS training managed out of DC Office)

- **Project Services**

- **Technical Services**

  (Product evaluation support, reqmt's analyses, implementation, short/long-term consulting)

Esri DC

Vienna, VA

(Tyson's Corner)

Questions?

See more on M&CS (PLTS) at FedUC kiosk in Exhibit Hall

Ask us or your Acct Mgr for a demo (your place or ours, or webcasted.)

Paul Stayert

ESRI DC Office

(703) 506-9515, x8033

pstayert@esri.com