



Esri International User Conference | San Diego, CA
Technical Workshops | 7/14/2011

Advanced Cartography with Esri Production Mapping (PLTS)

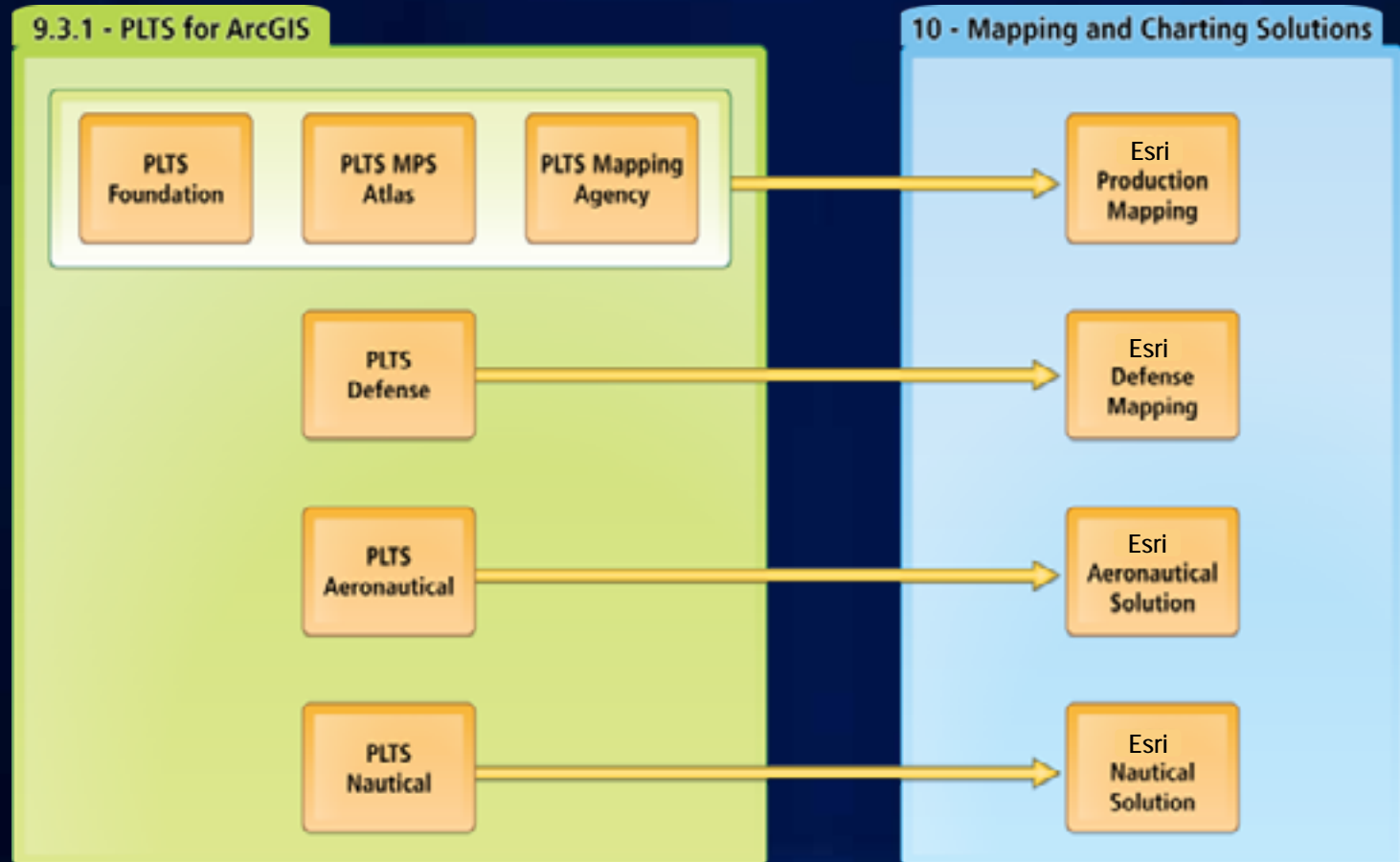
Clint Loveman & Tania Pal



Agenda

- **Outline generic cartographic workflows**
- **Discuss database driven cartographic production workflows in a multi-user environment**
- **Overview of Production Mapping tools that extend core functionality**
- **Discuss how these tools can be used to enforce standards and reusability**
- **Maintenance of maps and the underlying cartographic data over time using map editions**

Product Changes from 9.3.1 to 10



MPS-Atlas and Data Driven Pages

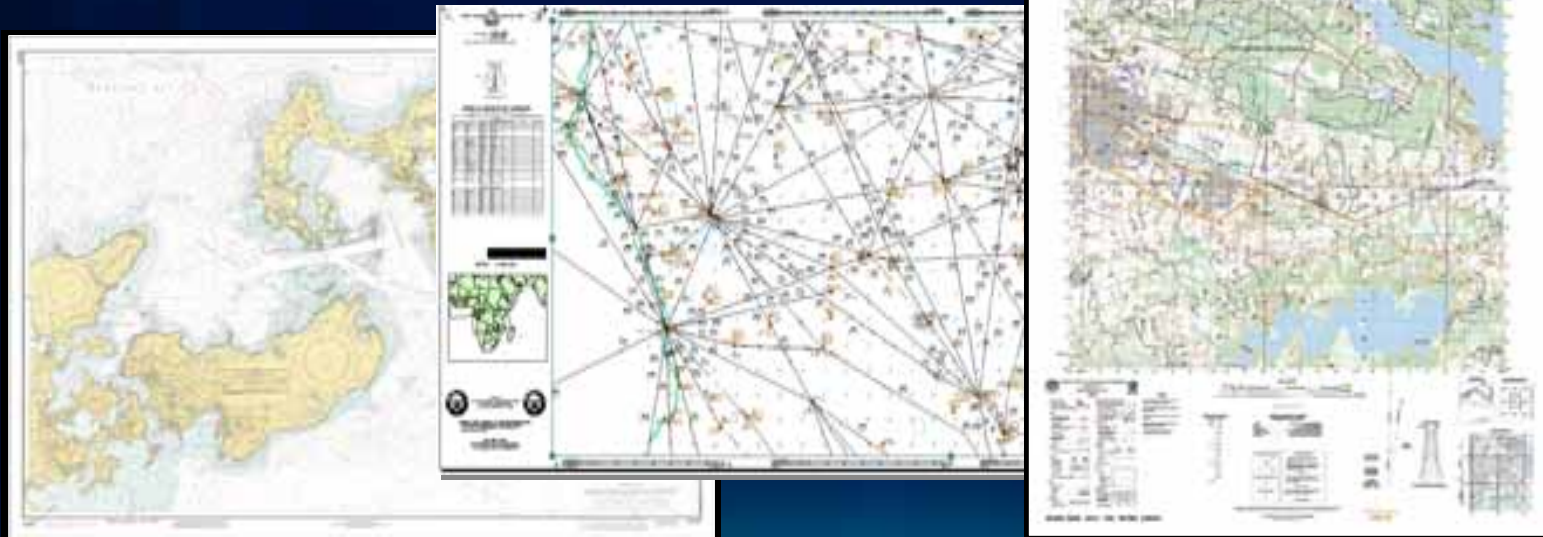
- **Atlas:** all functionality will remain
 - no new development
- **DDP:** new map book production capability in ArcGIS
- **DDP** for simple map book creation
- **Production Mapping** for advanced cartographic production
- **MPS Atlas (map booking tools) installs**
 - v10 as part of Production Mapping
 - v10.1 as an optional part of Production Mapping
 - Advanced cartography tools in Production Mapping









Production Mapping

Enterprise GIS for advanced data management and cartography

- Supports high-volume as well as custom map creation
- Facilitates standard, repeatable workflows
- Configurable for specific industries



Cartographic workflow overview

Steps	Details	Technology
	Context <ul style="list-style-type: none"> • Design/purpose • Geographic extent • Scale 	Product Library Template instructions
	Cartographic Data <ul style="list-style-type: none"> • Features • Attributes 	Grids and graticules layers Banding Magnetic
	Symbology <ul style="list-style-type: none"> • Features • Text 	Visual specifications Views
	Cartographic Editing <ul style="list-style-type: none"> • Automated • Interactive 	Layer snapshot Reshape representation Set origin vertex
	Layout <ul style="list-style-type: none"> • Elements 	Layout window Database elements Graphic tables Layout rules
	Publish <ul style="list-style-type: none"> • Printing • Exporting • Archiving 	SeeSpot Separated TIFF Layout GeoTIFF Product Library



Context

Map location, content and appearance



Product Library



Centralized management of production rules, maps and documents

- **Centralized information & behavior**
 - Data editing configuration
 - Quality control & assurance rules
 - Cartographic specifications
- **Product management**
 - Production life cycle:
 - Input/source
 - Production
 - Output/Publish
 - Integration with ArcMap
 - Integration with Workflow Manager
 - Multi-user permission control

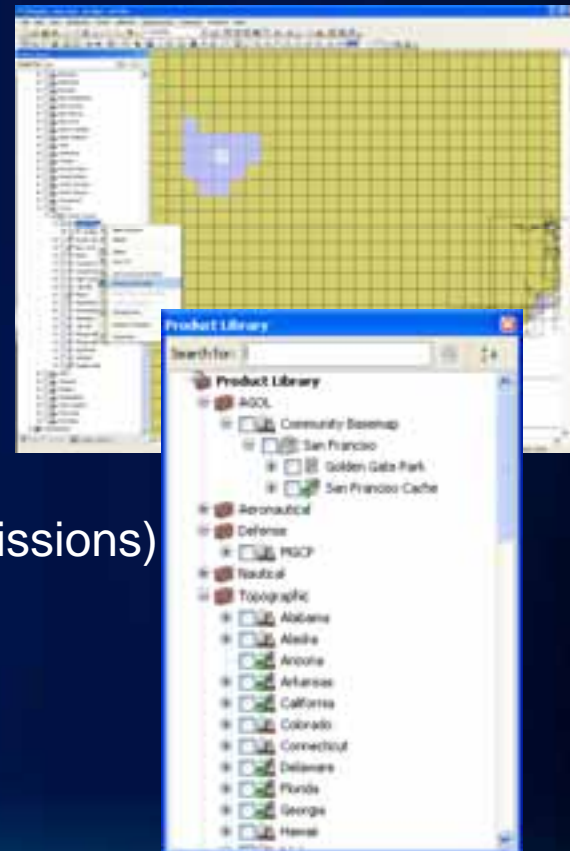


Product Library



Database permissions and document control

- **Personal/file**
 - All users have the same access
- **SDE - Two roles (DB Permissions)**
 - Administrator
 - User
- **Enterprise management of files**
 - Storage (File system/database)
 - Check in/out, undo, get local copy (permissions)
 - Versions
 - Linking
 - Searching

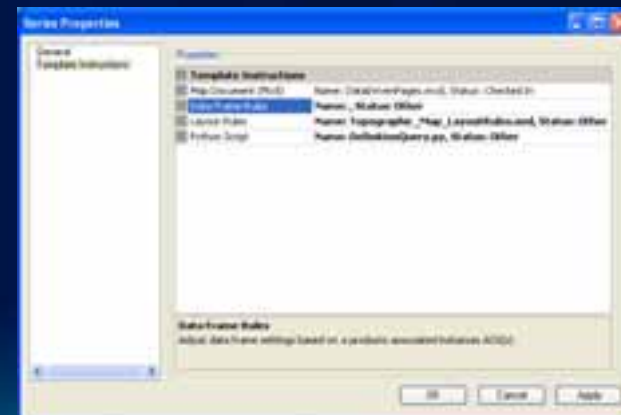


Product Library



Automated rule based cartographic production

- **Configuration & MXD management**
 - Map sheets
 - Map books (Data Driven Pages)
 - Batch product actions
- **Standardized cartographic behavior**
 - Shared symbology specifications
 - Template Instructions
 - Data frame rules
 - Layout rules
 - Python scripts





Cartographic Data Creation

Features and attributes used for cartographic production

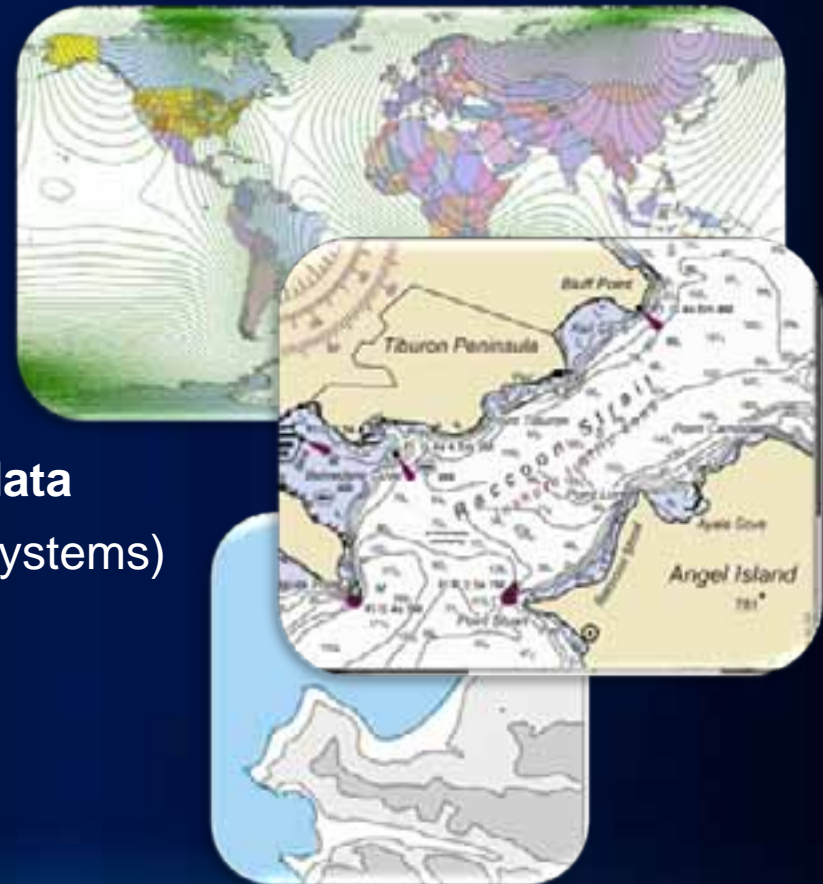


Cartographic Data



What is cartographic data?

- **Supplements GIS data**
 - Visualization of abstract concepts
 - Contours
 - Annotation
 - Etc...
- **Support for other common carto data**
 - Grids and graticules (coordinate systems)
 - Magnetic lines/points (navigation)
 - Hypsometric tinting (elevation)



Grids and graticules layers

Creation of grids, graticules and borders



- **Features in the geodatabase**
 - Feature dataset with feature classes
 - Editable with standard data editing tools
 - Visible in data view
- **Shareable specifications**
 - > 40 out-of-the box supported specifications
 - Design custom specifications
 - Shareable using a GDB or XML
 - Enhanced formatting
 - UTM convergence

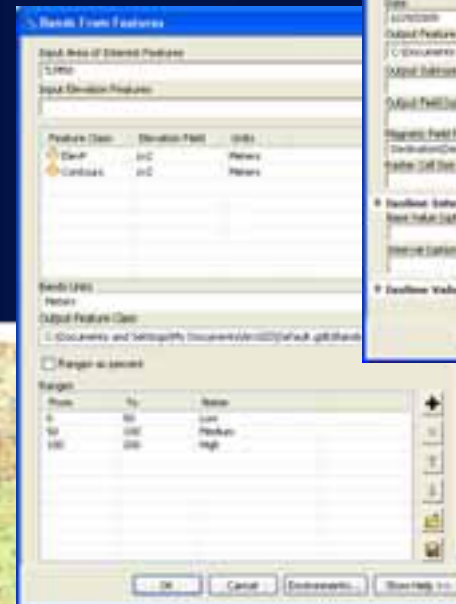


Other Cartographic Data Creation Tools



Features and attributes used for cartographic production

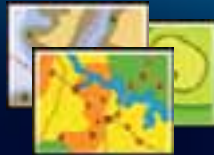
- **Magnetic**
 - Geoprocessing tools
 - World magnetic model
- **Banding**
 - Hypsometric tinting
 - Bands from features
 - Bands from raster



Context and Data Creation

Product Library
Grids and Graticules Layer





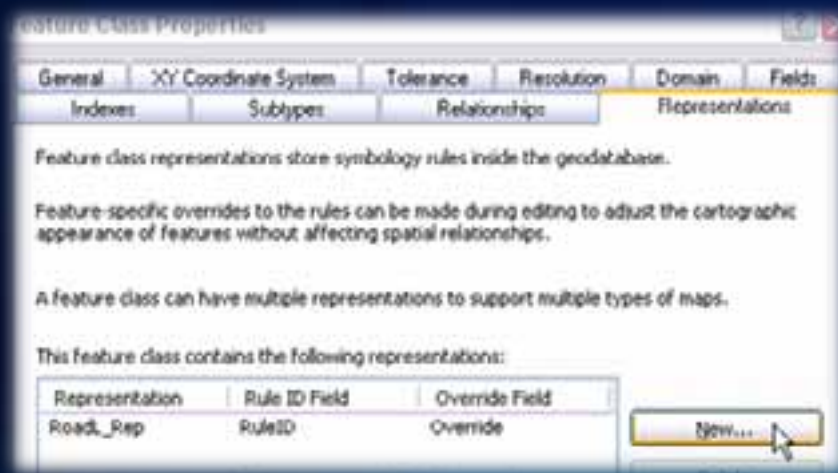
Symbology

Standardizing and sharing feature symbology

Overview of Representations

Flexible, rule-based feature symbology

- Customize appearance of features using representation rules
- Store symbol information with feature geometry
- Saved in feature classes as properties
- More than one representations / feature class



Visual Specifications

Standardizing feature symbology

- Manage representations across many layers
- Link feature attribution to representation rules
- Apply symbology using relational queries
- Single production workflow for symbology and text

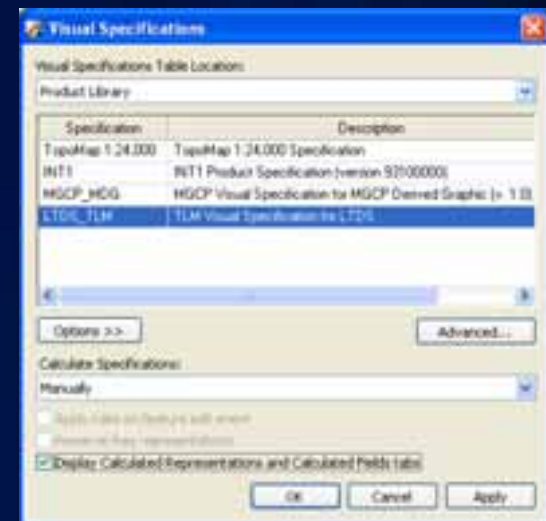


Visual Specifications

Standardizing feature symbology



- Stored and managed in “central” geodatabase
- Database Driven Cartography
 - SQL Expressions
 - Visual Basic Scripts (VBScript)
- Pre-configure symbology
 - Reuse
 - Standardize



Views



Layer and map settings distribution and deployment

- 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





Cartographic Editing

Automated and interactive maintenance tools



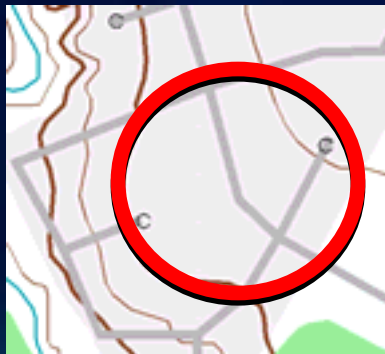
Cartographic Editing



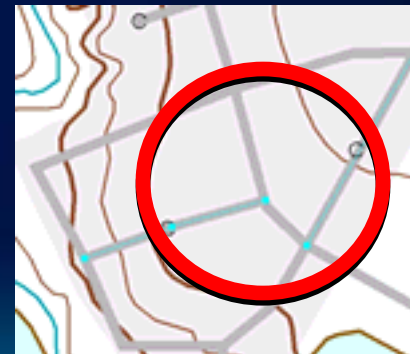
Maintenance of cartographic products

- Locate features that have changes between map editions
- Focus reviews and edits on changed areas only
- Layer Snapshot
 - Creates a “snapshot” of data with symbology
 - Compare the “snapshot” with current state of the layer and data
 - Does not require SDE databases

1st Edition



2nd Edition



New in 10.1

Improved geoprocessing and editing experience

- Geoprocessing

- Direct access to the tools through Python

`arcpy.<toolname_production>`

- Improved error/warning messages with extended help

- Standardizing parameter names

- Signature changes could affect existing scripts/models



Start time: Wed Jun 29 12:35:15 2011
ERROR 000040: "Feature Class <BuildingP> is being edited. The fields required by the specification <TopoMap 1:24,000> cannot be added or deleted.
Failed to execute
(CalculateVisualSpecifications).
Failed at Wed Jun 29 12:35:16 2011 (Elapsed Time: 1.00 seconds)

- Representation editing tools

- Tools that honor representation geometry

- Merge, Reshape, Hide, Show, Nudge



Symbology and editing

Visual Specifications

Layer Snapshot





Layout

Map surround

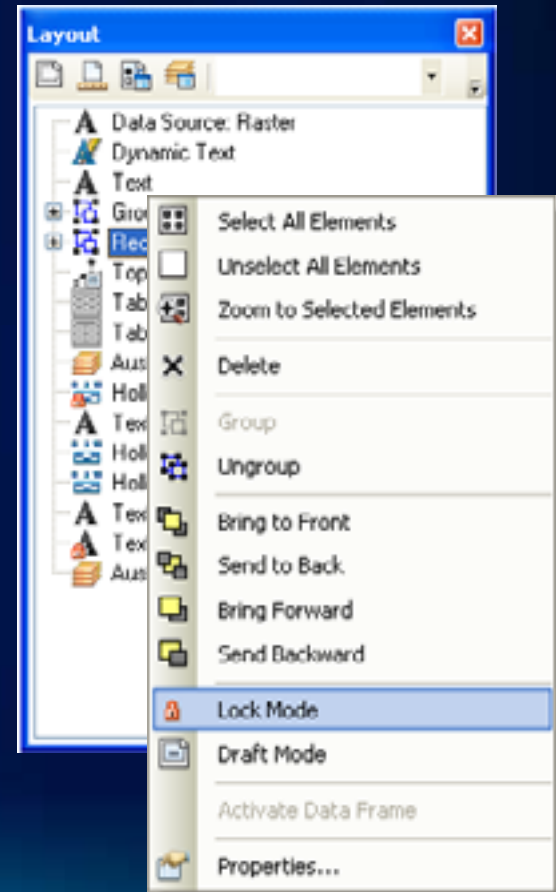


Surround Elements



Static and dynamic graphic on the layout page

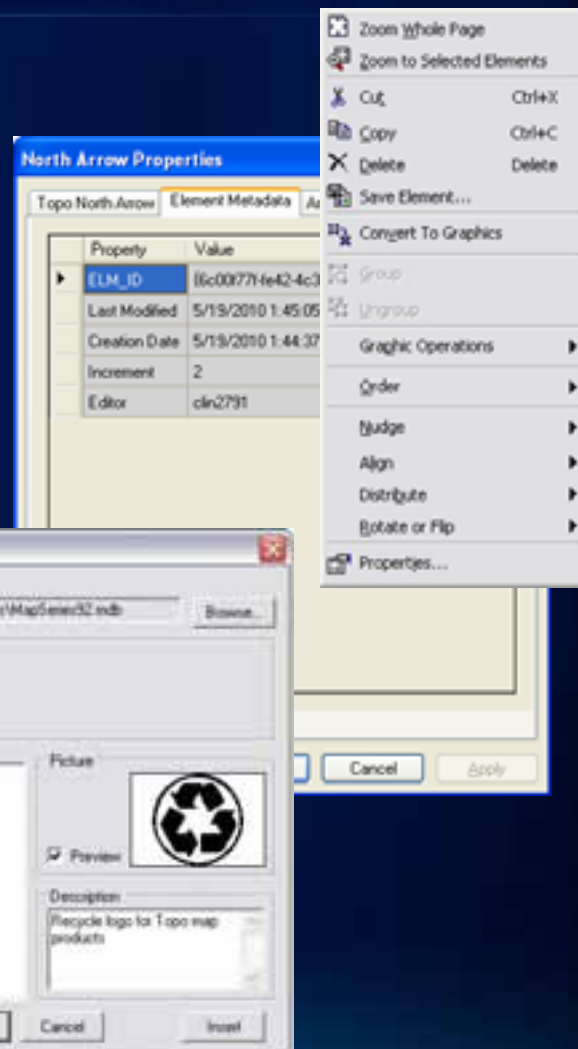
- **Layout window**
 - Centralized layout management
 - Similar to graphic applications
 - Element locking
 - Ordered list
 - Layout rules
 - Relative element rule placement
 - Automatically change page size
 - Data Frame Rules
 - Automatically set scale, project and size
- **Generic elements**
 - Database elements
 - Graphic table



Database Elements

Persist and share layout elements

- Store elements in a geodatabase
- Share elements across organization
- Track element metadata
- Useful for:
 - Legends
 - Scale bars
 - North arrows
 - Logos
 - Common notes





Publish

Printing, Exporting and Publishing

Publish



Printing, exporting and archiving

- **Printing and exporting**
 - Layout GeoTIFF
- **Color Separation**
 - Raster 1-bit TIFFs
 - SeeSpot
 - EPS based
 - Overprinting
 - Spot Colors
- **Archiving**
 - Documents archived into product library
 - Associated with a product
 - Document history and versions

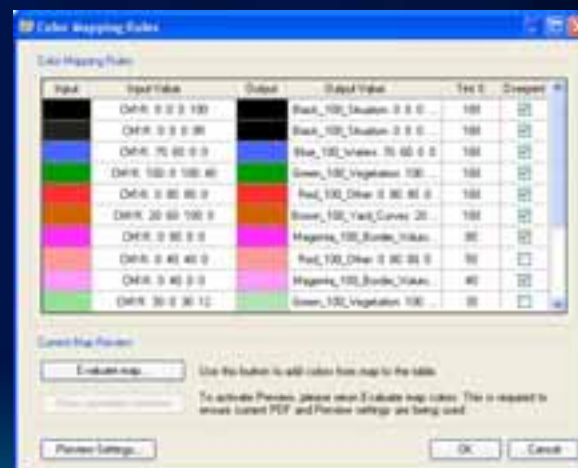
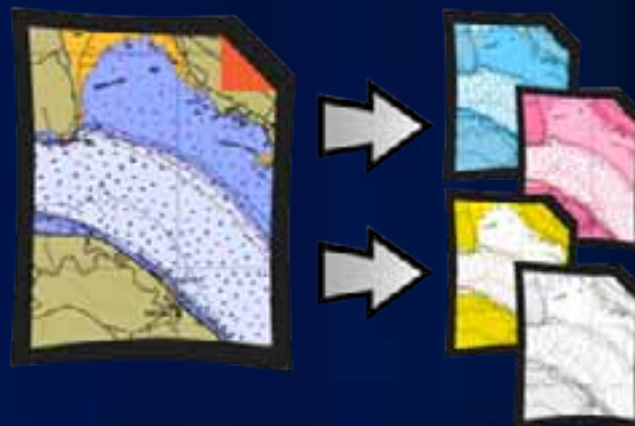


New in 10.1

Print production

Production PDF map exporter

- Overprinting
- Spot colors
- Tinting
- Color remapping on output
 - CMYK / RGB > CMYK / RGB / Spot
- Save and share PDF export settings
 - Multiple PDF deliverables across a team
 - Standard PDF settings + print production



Layout and Publishing

Layout

Product Library

Export



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Questions?

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