Esri Defense Mapping: Cartographic Map Production

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Agenda
Esri Defense Mapping: Cartographic Map Production

- Solution Overview

- Desktop Cartographic Automation
  - Create Rapid Graphic

- Product On Demand App (POD)
  - Esri Defense Mapping for ArcGIS Server

- Generalization
  - One Database, Multiple Products
Overview
Esri Defense Mapping
Esri Defense Mapping
Produce, Manage, and Share Authoritative Content

Systems of Record
- Desktop
- Server

Apps

System of Engagement

Services

Web GIS
Esri Defense Mapping
Enabling defense authoritative content producers and users

- **Defense Mapping as a Platform**
  - **Produce** Authoritative Content
  - **Manage** Production Environment
  - **Share** and Collaborate
Providing Authoritative Defense Content
Integrated across the ArcGIS Platform

Specifications
Data Models
ETL
Workflows

Authoritative Content

Disconnected Editing
Land Operations
Map Applications
Executive Access

Server
Online Content and Services

Produce
Manage / Share
Esri Defense Mapping for ArcGIS Desktop
An Extension to the ArcGIS Platform

- Specification Driven
- Geoprocessing Toolsets
- Predefined Edit Templates
- Quality Assurance / Control
- Cartographic Symbology
Esri Defense Mapping – ArcGIS Pro 2.0
Industry Focused Solution

- Data Production Workflow
  - Data Ingest
  - Data Collection / Maintenance
  - Data Validation
  - Data Dissemination
Cartographic Automation
Esri Defense Mapping for ArcGIS Desktop
Cartographic Automation
Expediting the Desktop Map Creation Process

Rapid Mapping

Cartographic Product

Centerline Data - Data Preparation - Create Rapid Graphic - Export Map - Evaluate Map - Enhance Cartography - Publish Map
Data Preparation
Creating and Preparing Cartographic Data

Create Data
- Extract Area of Interest (GP)
- Create Contours (GP)
- Create Spot Heights (GP)
- Add Boundary Data
- Add Map Sheet Information

Prepare Data
- Calculate Visual Specifications (GP)
- Building Offsets (GP)
- Calculate Bridge Overrides (GP)
- Suppress Spot Heights (GP)
Create Rapid Graphic
Automated Map Creation

Centerline Data → Data Preparation → Create Rapid Graphic

Geoprocessing
Rapid Graphic Map Template
Defining the Map Sheet Layout

- Centerline Data
- Data Preparation
- Create Rapid Graphic
- Map Template (MXD)

Custom Template
- Layers
- Logo
- Legend
- Notes
- Graphics
Rapid Graphic Output
Geoprocessing Options

Centerline Data ➔ Data Preparation ➔ Create Rapid Graphic ➔ Output Options

Rapid Graphic Output
- Map Document
- Production PDF
- Map Package
Create Rapid Graphic
Demonstration
Create Rapid Graphic Functions
Automated Updates to the Map Sheet

Map Template
- Dynamic Elements
- Map Sheet Information

Data Frames
- Projected Extents
- Grids & Graticules
- Sourced Data Layers
- Export Layer Order
- Spot & Contour Labels
- Feature Annotation
- Adjoining Sheet Labels
- Elevation Band Data
- Elevation Band Symbols
Cartographic Product
Evaluating the Map Sheet

Centerline Data → Data Preparation → Create Rapid Graphic → Export PDF → Evaluate Map

Rapid Mapping
Cartographic Updates
Meeting Cartographic Requirements

Cartographic Updates
- Map Information
- Element Placement
- Feature Offsets
- Symbol Levels for Roads
- Thin or Hide Annotation
- Annotation Masks
Map Publishing
Delivering the Cartographic Product

Centerline Data → Data Preparation → Create Rapid Graphic → Export PDF → Evaluate Map → Enhance Cartography → Publish Map

Cartographic Product
Cartographic Automation
Expediting the Desktop Map Creation Process

Centerline Data → Data Preparation → Create Rapid Graphic → Export Map → Evaluate Map → Enhance Cartography → Publish Map

Rapid Mapping → Cartographic Product
Product on Demand

Esri Defense Mapping for Server
Product On Demand
Esri Defense Mapping Web Application

- Installed with Esri Defense Mapping for Server

- Cartographic Production App

- Self-service
  - Defense Products
  - Custom Products
Product on Demand
Demonstration
Generalization
Map Automation with Esri Defense Mapping
Automated Generalization
One Database, Multiple Products

Best Scale Data (50K)

Multiple Scale Products

(250K)

(50 or 100K)
Generalization Techniques

- Simplify
- Smooth
- Eliminate
- Amalgamate
- Exaggerate
- Collapse
- Thin
Generalization Tools in ArcGIS

- Analysis
  - Erase
  - Identity
  - Buffer
  - Graphic Buffer (10.5)
  - Near
  - Generate Near Table

- Cartography
  - Aggregate Points
  - Aggregate Polygons
  - Collapse Road Detail
  - Create Cartographic Partitions
  - Delineate Built-Up Areas
  - Merge Divided Roads
  - Simplify Building
  - Simplify Line
  - Simplify Polygon
  - Smooth Line
  - Smooth Polygon
  - Thin Road Network
  - Detect Graphic Conflict
  - Propagate Displacement
  - Resolve Building Conflicts
  - Resolve Road Conflicts
  - Feature Outline Masks
  - Update Override

- Conversion
  - Feature class to feature class
  - Table to Table

- Data Management
  - Integrate
  - Add Geometry Attributes
  - Copy Features
  - Delete Features
  - Feature To Line
  - Feature To Point
  - Feature To Polygon
  - Feature Vertices to Points
  - Minimum Bounding Geometry
  - Multipart To Singlepart
  - Repair Geometry
  - Split Line At Vertices
  - Unsplit Line
  - Add Field
  - Calculate Field
  - Append
  - Copy
  - Delete
  - Dissolve
  - Eliminate Polygon Part
  - Make Feature Layer
  - Select Layer By Attribute
  - Select Layer By Location
  - Get Count

- Spatial Analyst
  - Topo To Raster
  - Raster Calculator
  - Polygon To Raster
  - Point To Raster
  - Con
  - Contour
  - Raster to Point

- Model Only Tools
  - Select Data
  - Calculate Value
  - Iterators

- Production Mapping
  - Aggregate Polygons
  - Calculate Visual Specification
  - Convert Polygons
  - Delete Dangles
  - Delete Polygons and Extend Lines
  - Extend Polygon Sides
  - Fill Gaps
  - Generalized Shared Features
  - Increase Line Length
  - Increase Polygon Area
  - Production Centerline (10.5.1)
  - Production Clip

- Defense Mapping
  - Hydro Centerline

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- Defense Mapping
  - Hydro Centerline
Leverage Tools Within Models...
...and Submodels
...and Python
Generalization in Esri Defense Mapping
Theme-Based Approach

Best Scale Foundation Content
- Settlement
- Transportation
- Hydrography
- Landcover
- Infrastructure

Elimination / Thinning / Aggregation

Simplify / Smooth
- Maintain Relationships

Generalize Shared Features

Cartographic Automation
TDS Generalization in Esri Defense Mapping

- 50K to 250K Generalization
- TDS 6.1 Data Schema
- Output Intended for 250K Product Creation
- ArcGIS Desktop with Esri Defense Mapping Releases:
  - 10.5.1
  - 10.5 Patch 2
  - 10.4.1 Patch 5
Generalization
Demonstration
Summary

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Survey & Resources
Esri Defense Mapping: Cartographic Map Production
Please Take Our Survey on the Esri Events App!

Download the Esri Events app and find your event

Select the session you attended

Scroll down to find the survey

Complete Answers and Select “Submit”
Esri Defense Mapping Team
Esri User Conference 2017

- **Esri Showcase, Defense and Intelligence, SDCC Exhibit Hall B1**
  - Tuesday 9:00 am – 6:00 pm
  - Wednesday 9:00 am – 6:00 pm
  - Thursday 9:00 am – 1:30 pm

- **Support & Demos**

- **Technical Workshops**
  - **Esri Defense Mapping for Server: Defense Product on Demand**
  - 1:30 pm - 2:45 pm
  - Omni - Ballroom C
Want to learn more?

Online Resources

• Documentation
  - Esri Defense Mapping

• Training
  - Introduction to Esri Defense Mapping

• Resources
  - ArcGIS Help: Esri Defense Mapping
  - GeoNet: Esri Community Forum
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Questions

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