Esri Production Mapping: Configuring the Solution for Civilian Topographic Agencies

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What's New

• Version 4.0 (Released)
  - Distributed Generalization

• Version 5.0
  - Support for 10K Map Products
Civilian Topographic Map Product (CTM)
Enabling Production Mapping for Topographic Mapping

- Template Maps
- Cartographic Rules
- Generalization Rules
- Validation Rules
- Editing Rules
- Workflows

Sample Data

Derived from NFDD

https://github.com/esri/ctm
Civilian Topographic Data Model

- National System for Geospatial Intelligence Feature Data Dictionary (NFDD)
- Comprehensive dictionary
  - Feature Types
  - Feature Attributes
  - Attribute Values
- Standardized
Civilian Topographic Data Model

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- Comprehensive dictionary
  - Feature Types
  - Feature Attributes
  - Attribute Values
- Standardized
Civilian Topographic Data Model

- 55 Feature Classes
- 325 Subtypes

10K Collection

25K Collection

10 K Maps

25 K Maps

50 K Maps
Editing configurations

• Sample Editing Feature Templates for 10K, 25K and 50K scales

• Field configurations
Data Validation

- Spatial Checks
- Attribution Checks
- Topology
• Reviewed ~70 maps from different countries
  - North America, South America, Europe, Africa, and Asia
• Setup the layout based on the majority
• Reviewed ~30 maps from different countries
• Compromised list of symbols, colors, type, etc.
  - Took the majority for each symbol and color
Grids and Graticules

- 24K Grid - US Forestry Service
- Adjusted to CTM 25K
  - Map Layout
  - Scale
  - Coordinate Systems
Generalization and Distributed Generalization
Distributed Generalization

- Process data more efficiently
- Uses “Partitions”
- Process across multiple machines and CPUs
- Can process
  - Geo Processing tools
  - Model Builder
  - Python

Inputs
- Geodatabase
- Partitions
- List of Machines

Data Nodes 1 - N

Output
- Enterprise Geodatabase
- Azure
- Amazon
Why use Distributed Generalization?
Why use Distributed Generalization?

- Scalable
- Memory efficient
- Time efficient
How it Works - Parent Job

- One parent job for the entirety of the work area
- Runs on a single machine

![Diagram of the United States with arrows showing the process flow]

- Performs any pre-processes
- Child Jobs automatically created from Partitions
- Waits until all child jobs are complete
- Combine data and Perform Edge Matching
How it Works – Parent Job
• Performs pre-process operations such as creating partitions

Perform any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching
How it Works – Parent Job

- Creates one child job for each partition
- Waits till all child jobs are complete

Perform any pre-processes

Child Jobs automatically created from Partitions

Waits until all child jobs are complete

Combine data and Perform Edge Matching
How it Works - Child job(s)

- Generalization done by 1 child job
- One child process per partition
How it Works – Edgematch

- Data is moved back to the parent
- Edgematching is done
- Seamless generalized database

Performs any pre-processes → Child Jobs automatically created from Partitions → Waits until all child jobs are complete → Combine data and Perform Edge Matching
Production Mapping Server
Production Mapping Server
Product on Demand
Upcoming Releases

• **More Scales**
  - 1K/10K

• **New Generalization Models**

• **ArcGIS Pro Support**
• The NFDD v2.0 specification is published at https://nsgreg.nga.mil/fdd/view?i=80050/

• CTM: http://www.github.com/Esri/CTM
<table>
<thead>
<tr>
<th>Day and Description</th>
<th>Type</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wednesday, July 12</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ArcGIS Workflow Manager: Advanced Topics</td>
<td>Technical Workshop</td>
<td>10:15 - 11:30am</td>
<td>SDCC Room 31</td>
</tr>
<tr>
<td>ArcGIS Workflow Manager: Integrate Tasks into your Workflow Process</td>
<td>Demo Theater</td>
<td>11:30am - 12:15pm</td>
<td>SDCC Demo Theater 06</td>
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<tr>
<td>Esri Production Mapping: Generating High Quality Product-on-Demand Maps Over the Web</td>
<td>Demo Theater</td>
<td>1:00 - 1:30pm</td>
<td>SDCC Demo Theater 18</td>
</tr>
<tr>
<td>ArcGIS Data Reviewer: An Introduction</td>
<td>Technical Workshop</td>
<td>3:15 - 4:30pm</td>
<td>Room 31B</td>
</tr>
<tr>
<td>ArcGIS Data Reviewer: Integrating Data Validation Capabilities into Web Applications</td>
<td>Demo Theater</td>
<td>3:30 - 4:15pm</td>
<td>Demo Theater 8 Enterprise</td>
</tr>
<tr>
<td>ArcGIS Workflow Manager: Integrating Geoprocessing and Python into your Business Processes</td>
<td>Demo Theater</td>
<td>3:30 - 4:15pm</td>
<td>SDCC Demo Theater 06</td>
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<tr>
<td>Esri Production Mapping: Automate Map Production with ArcGIS Workflow Manager</td>
<td>Demo Theater</td>
<td>3:30-4:15 pm</td>
<td>SDCC Demo Theater 03</td>
</tr>
<tr>
<td>ArcGIS Data Reviewer: Implementing Data Quality Reporting in Web Clients</td>
<td>Demo Theater</td>
<td>4:30 - 5:15pm</td>
<td>Demo Theater 8 Enterprise</td>
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<tr>
<td><strong>Thursday, July 13</strong></td>
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<td></td>
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<tr>
<td>Supporting Daily Workflows with Tools</td>
<td>Demo Theater</td>
<td>3:30-4:15pm</td>
<td>SDCC Demo Theater 03</td>
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<td>ArcGIS Data Reviewer: Advanced Data Validation</td>
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<td>8:30 - 9:45am</td>
<td>Room 31A</td>
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<td>ArcGIS Data Reviewer: Leveraging Geoprocessing for Data Validation</td>
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<td>9:30 - 10:15am</td>
<td>Demo Theater 6 Spatial Data Mgmt</td>
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<td>ArcGIS Data Reviewer: Validating Linear-Referenced Events</td>
<td>Demo Theater</td>
<td>10:30 - 11:15am</td>
<td>Demo Theater 6 Spatial Data Mgmt</td>
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Want to learn more this week?