

# 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

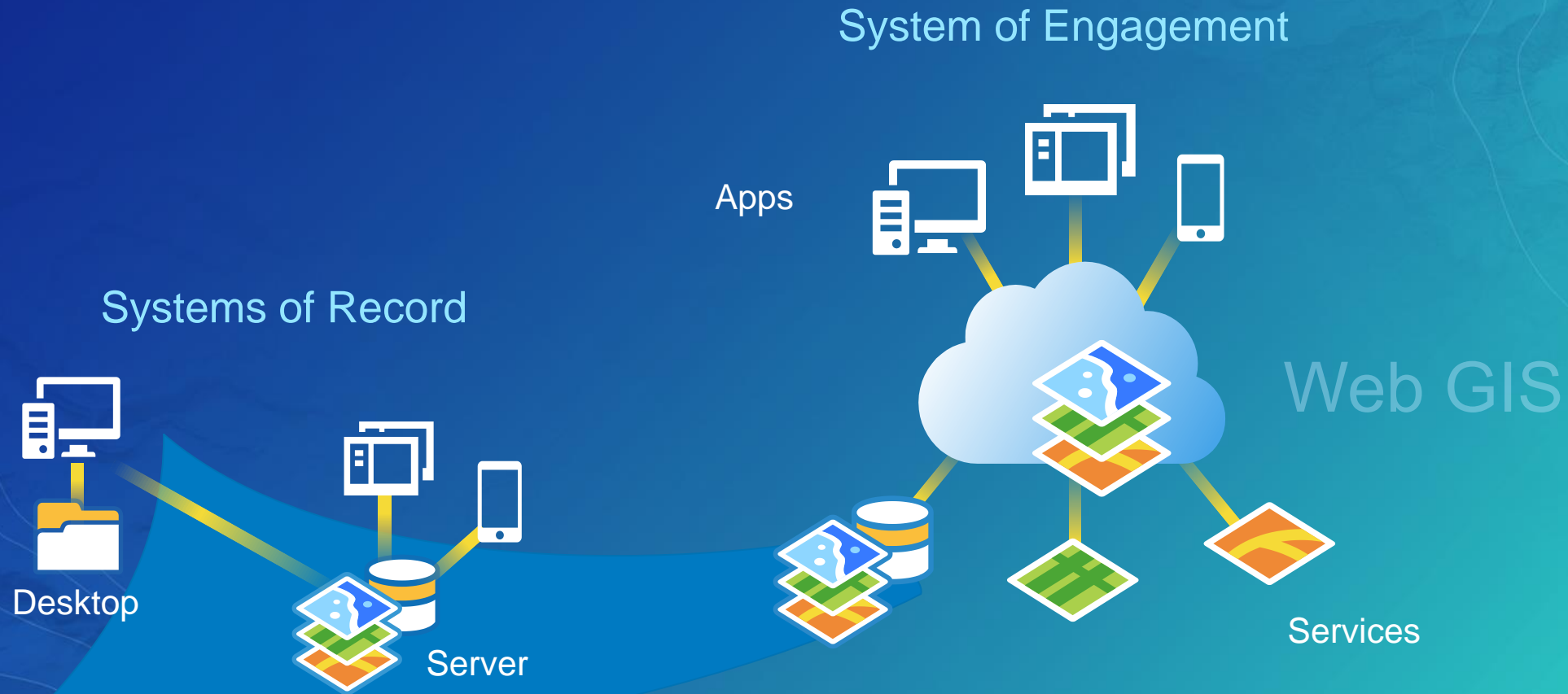
Esri Defense Mapping





# Esri Defense Mapping

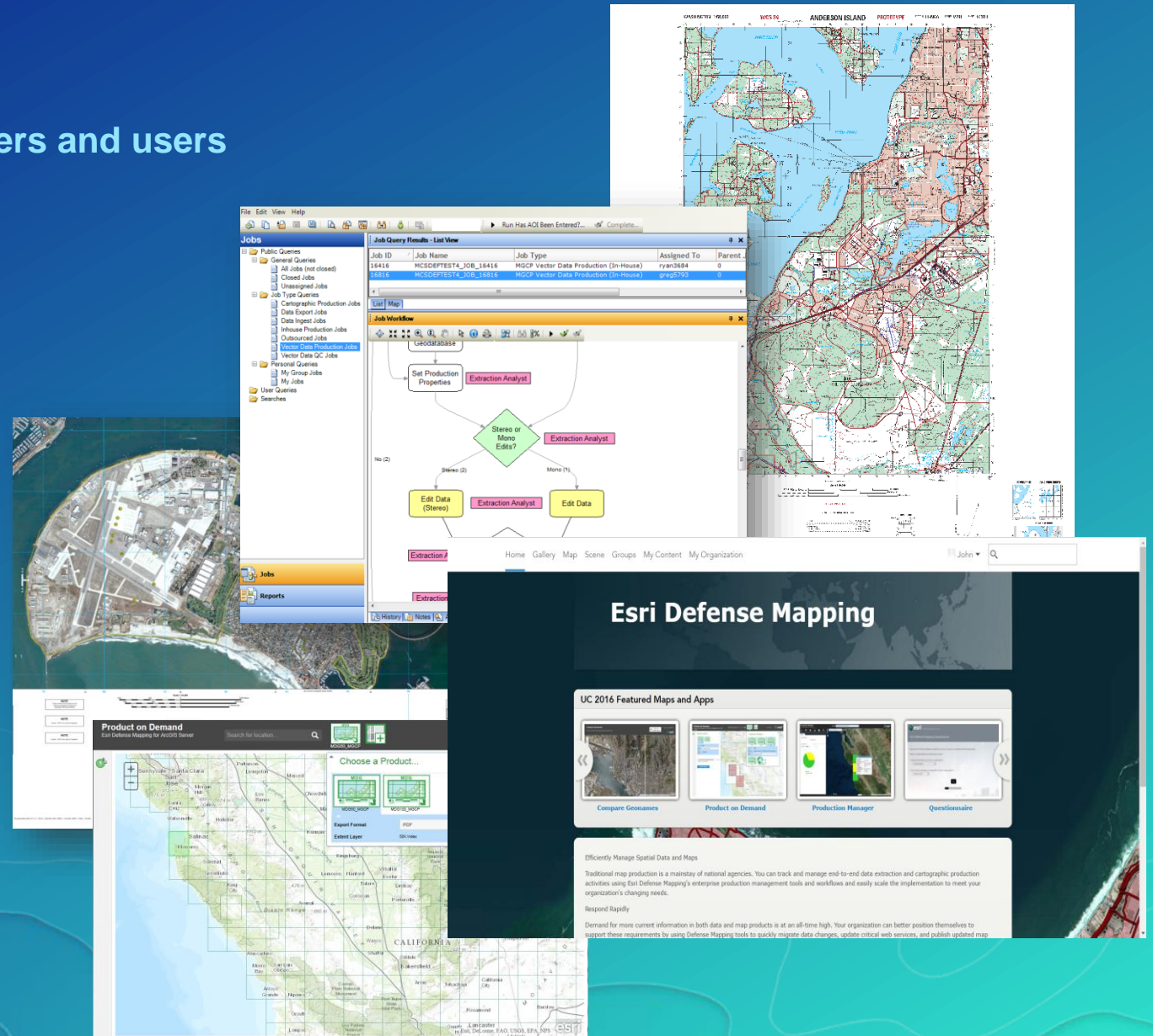
Produce, Manage, and Share Authoritative Content



# Esri Defense Mapping

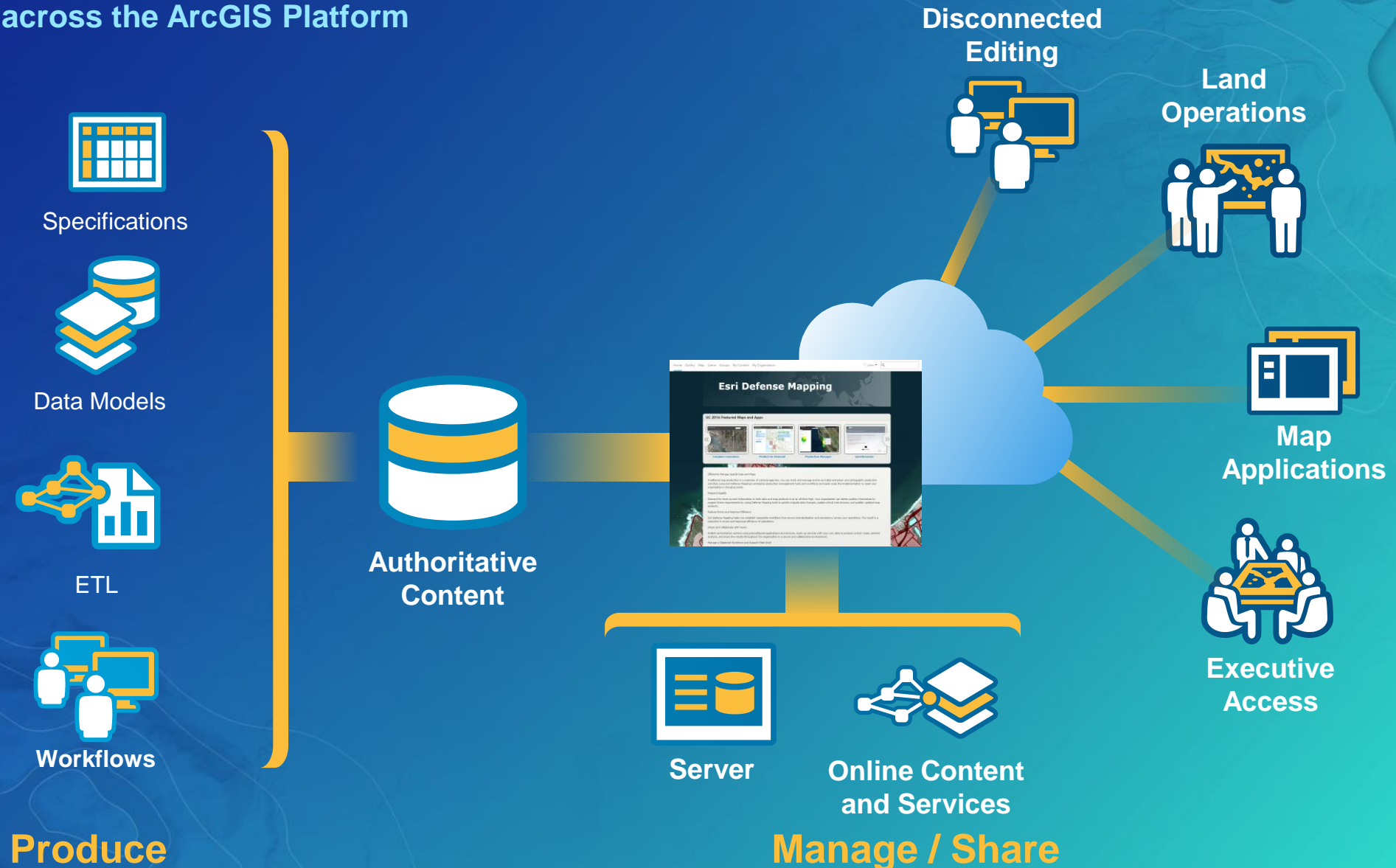
Enabling defense authoritative content producers and users

- Defense Mapping as a Platform
  - **Produce** Authoritative Content
  - **Manage** Production Environment
  - **Share** and Collaborate



# Providing Authoritative Defense Content

Integrated across the ArcGIS Platform

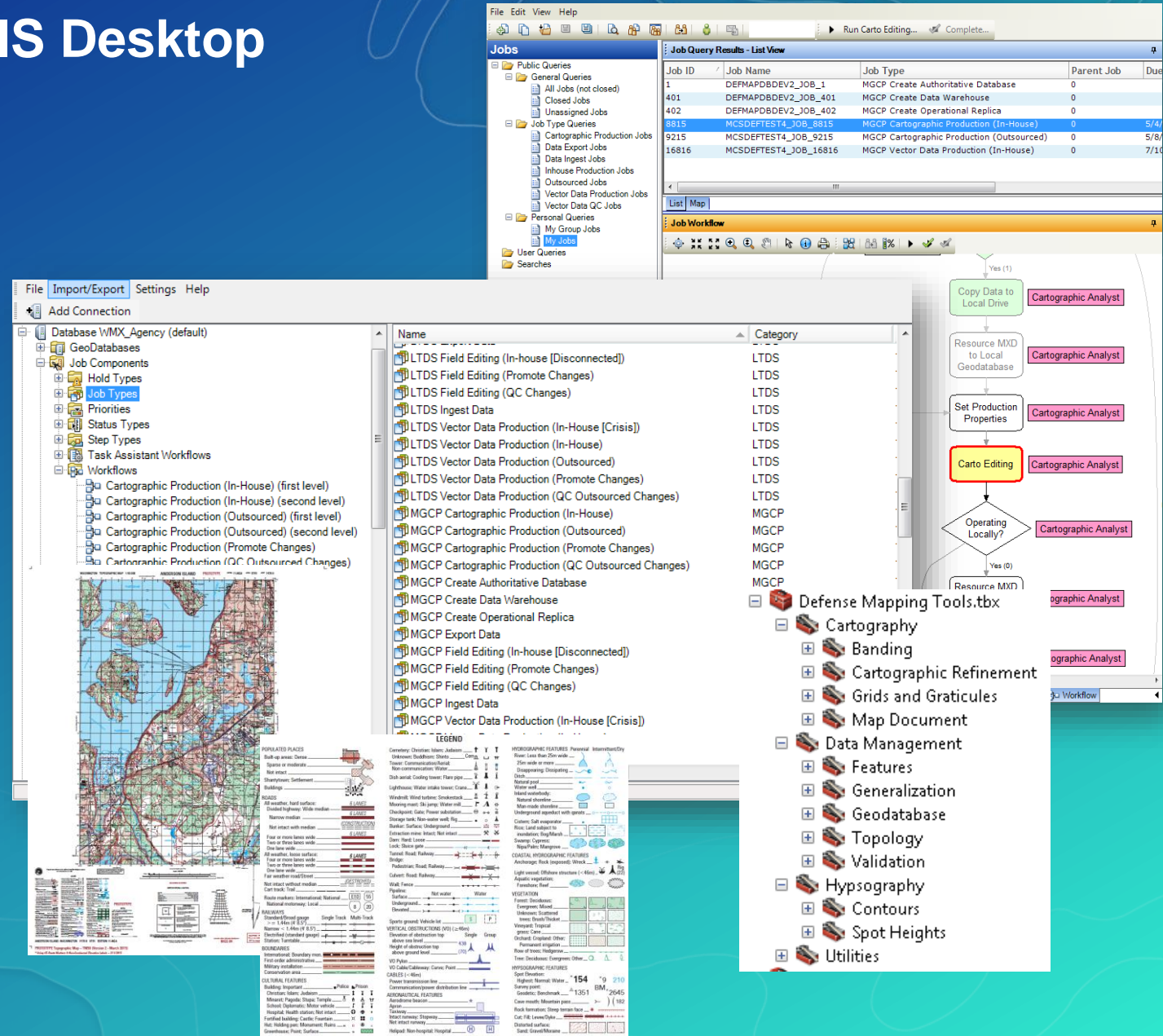




# Esri Defense Mapping for ArcGIS Desktop

## An Extension to the ArcGIS Platform

- **Specification Driven**
- **Geoprocessing Toolsets**
- **Predefined Edit Templates**
- **Quality Assurance / Control**
- **Cartographic Symbolology**

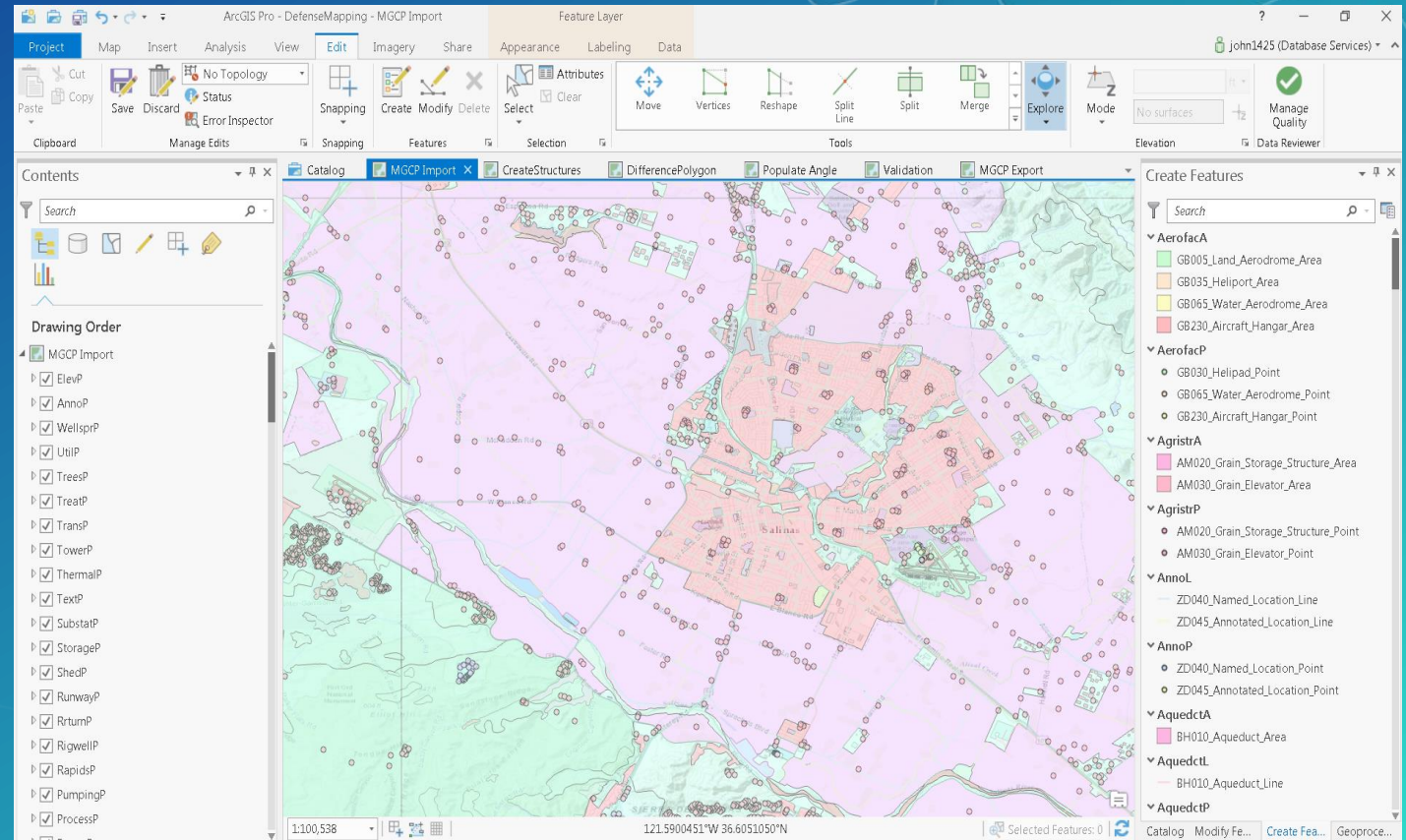


# Esri Defense Mapping – ArcGIS Pro 2.0

## 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

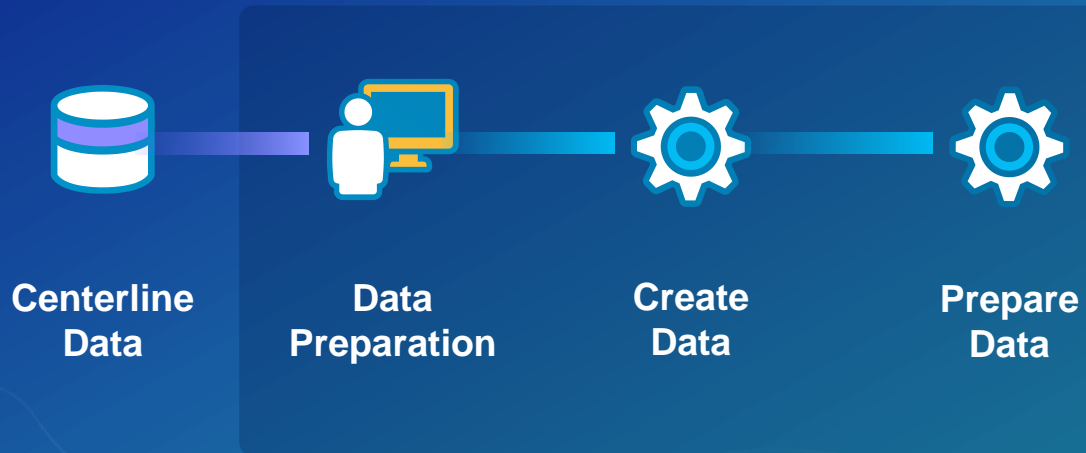


**Rapid Mapping**

**Cartographic Product**

# Data Preparation

Creating and Preparing Cartographic Data



**Cartographic Data**

## Create Data

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

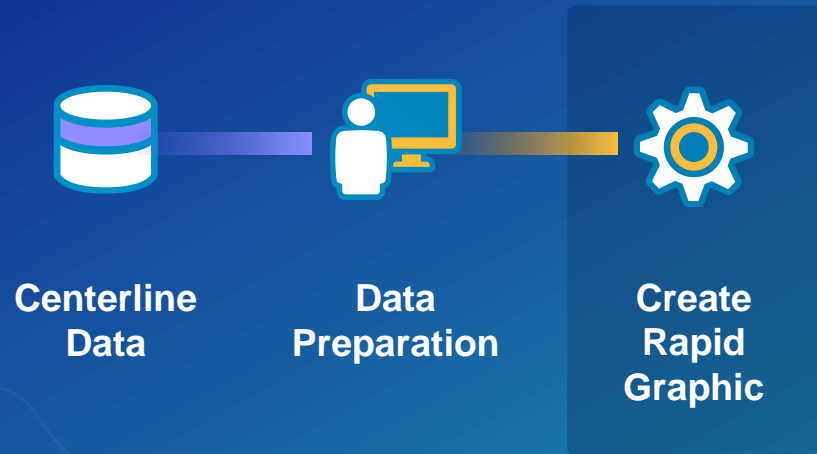
## Prepare Data

- Calculate Visual Specifications (GP)
- Building Offsets (GP)
- Calculate Bridge Overrides (GP)
- Suppress Spot Heights (GP)



# Create Rapid Graphic

## Automated Map Creation



Geoprocessing

The 'Create Rapid Graphic' dialog box is shown, detailing the configuration for automated map creation. It includes fields for input data, area of interest, product type, version, and workspace, along with optional customization settings for rasters, export type, and templates.

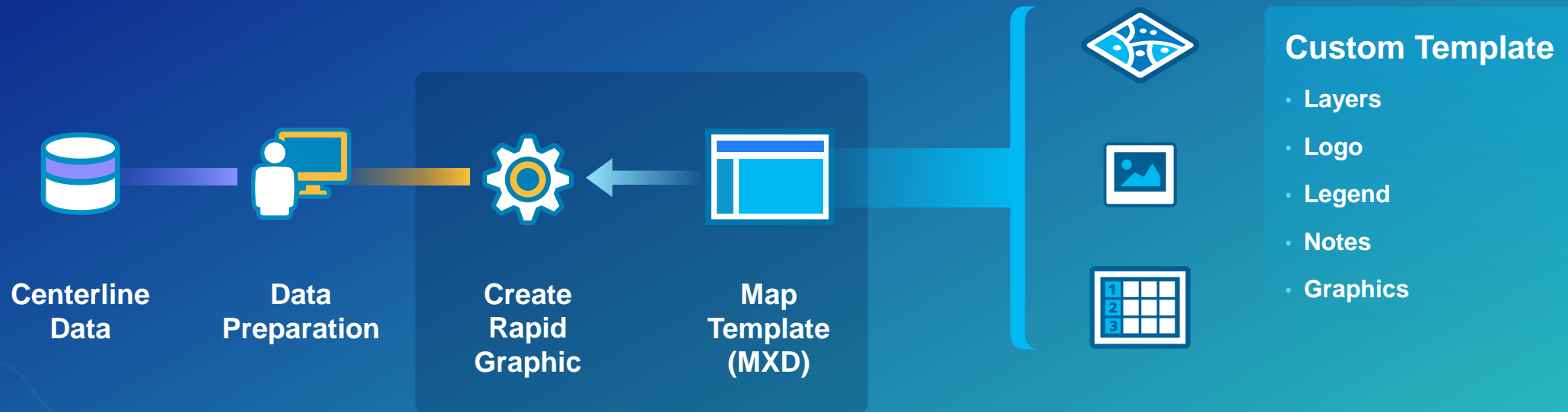
**Create Rapid Graphic**

- Input Geodatabase:
- Area of Interest:
- Product Type:
- Version:
- Map Document Workspace:
- Customize (Optional)**
  - Input Rasters (optional):
  - |  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
  - Export Type (optional):
  - Custom Map Template (optional):
  - Custom Map Info Table (optional):

Buttons: OK, Cancel, Environments..., Show Help >>

# Rapid Graphic Map Template

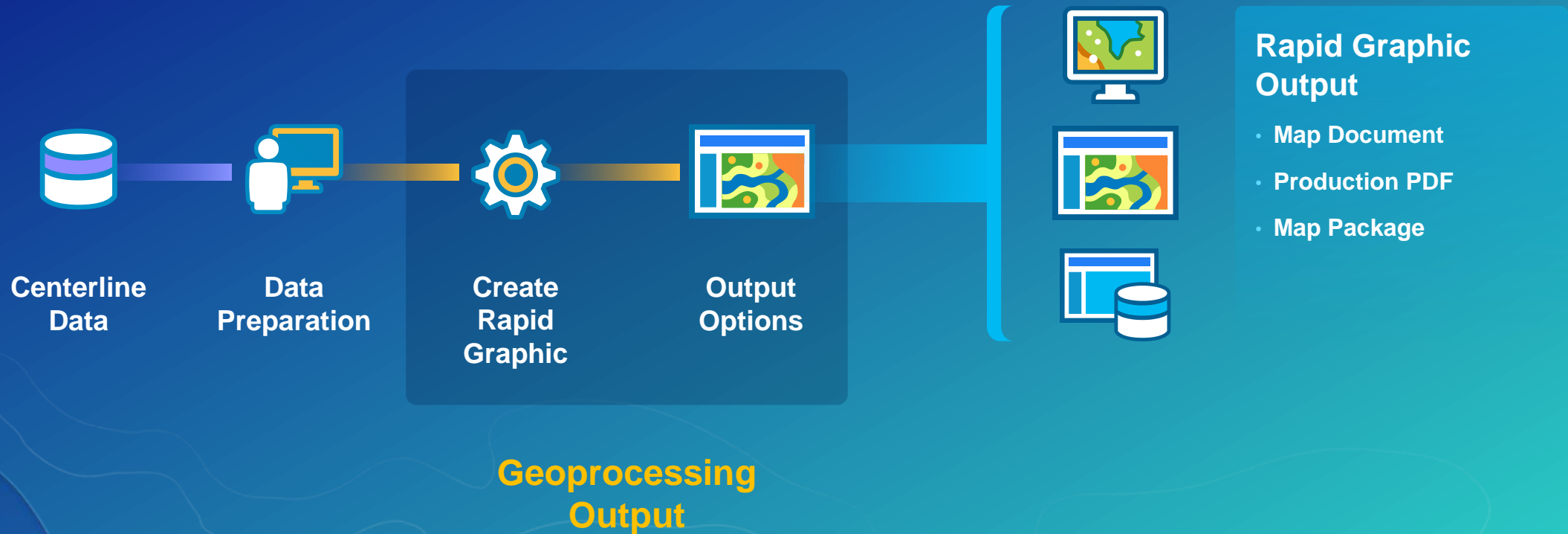
Defining the Map Sheet Layout



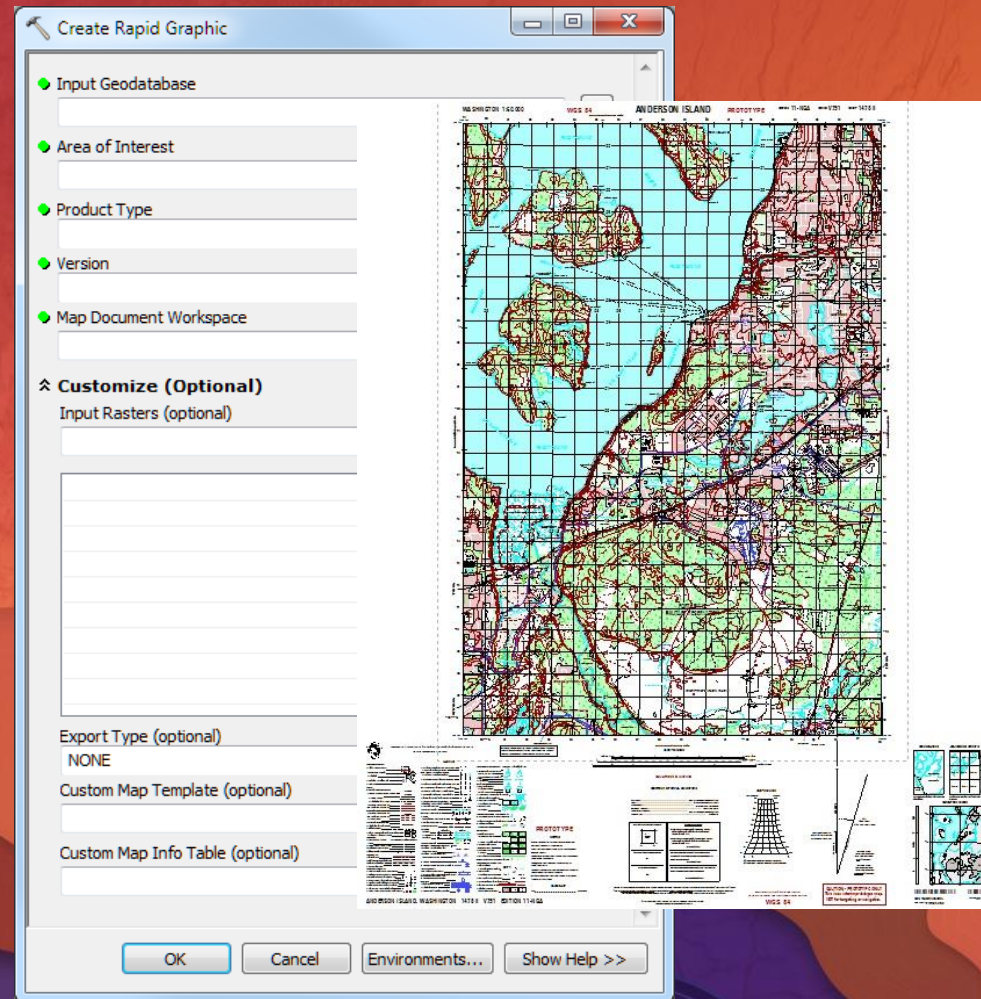
Map Template

# Rapid Graphic Output

## Geoprocessing Options







# Create Rapid Graphic

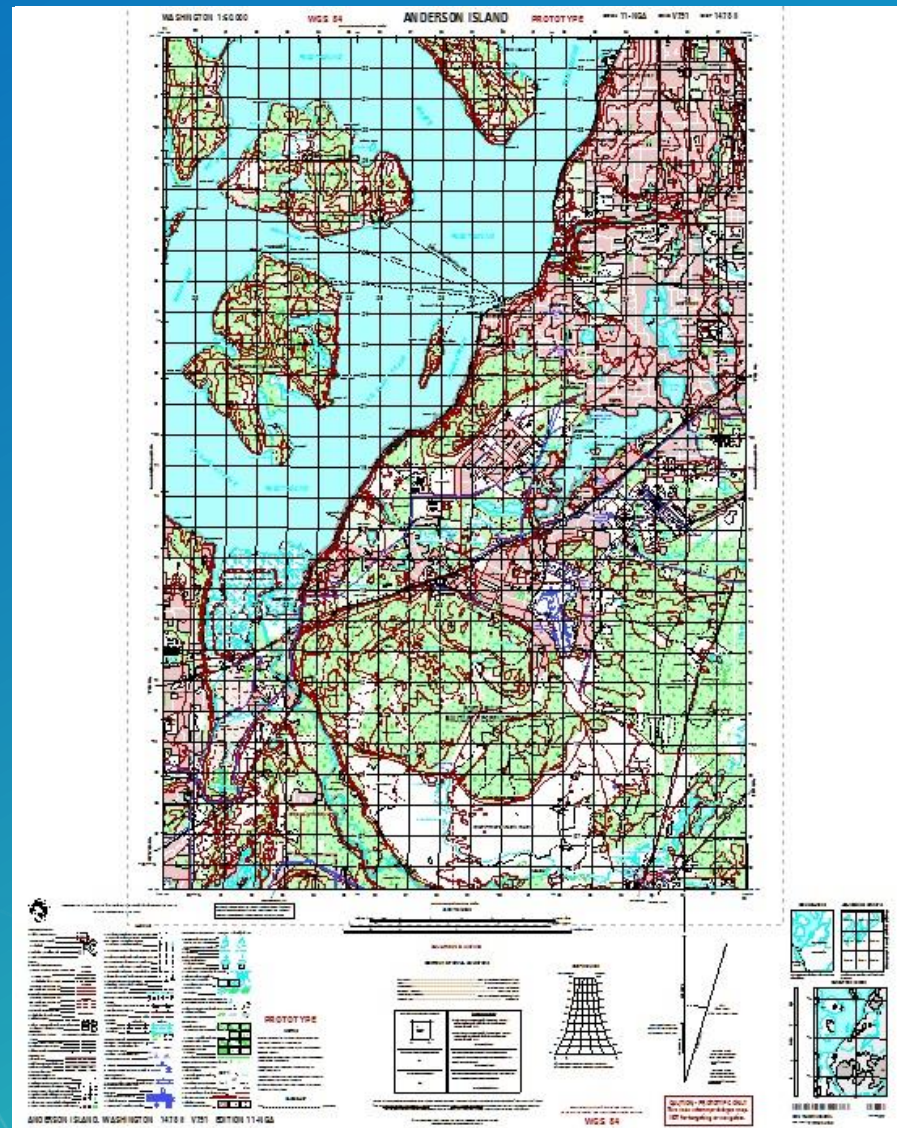
Demonstration



## Automated Updates to the Map Sheet

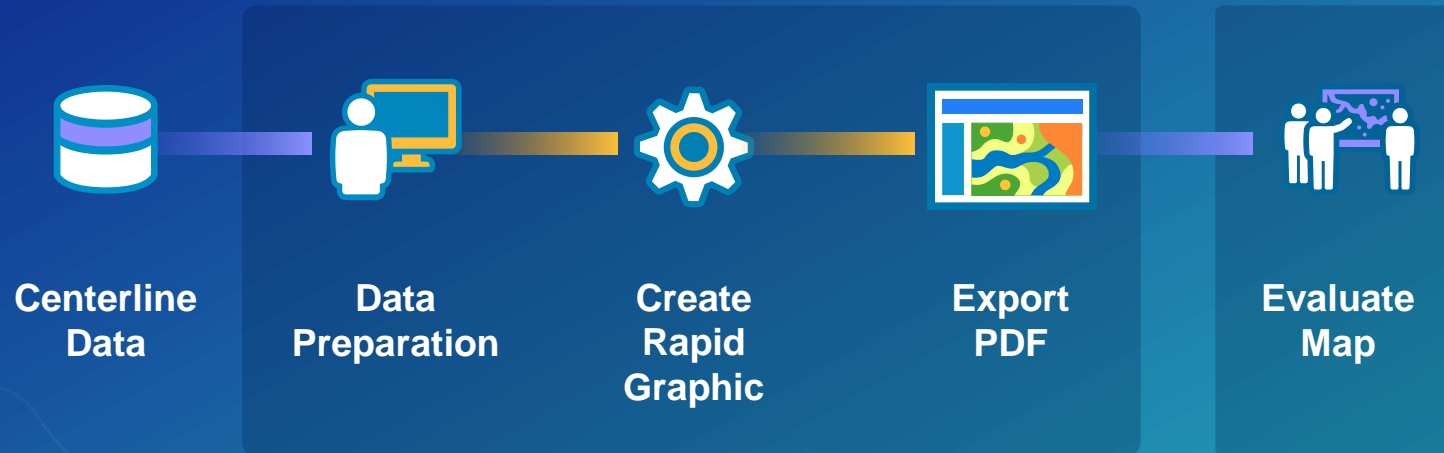
- **Dynamic Elements**
- **Map Sheet Information**

- **Projected Extents**
- **Grids & Graticules**
- **Sourced Data Layers**
- **Export Layer Order**
- **Spot & Contour Labels**
- **Feature Annotation**
- **Adjoining Sheet Labels**
- **Elevation Band Data**
- **Elevation Band Symbols**

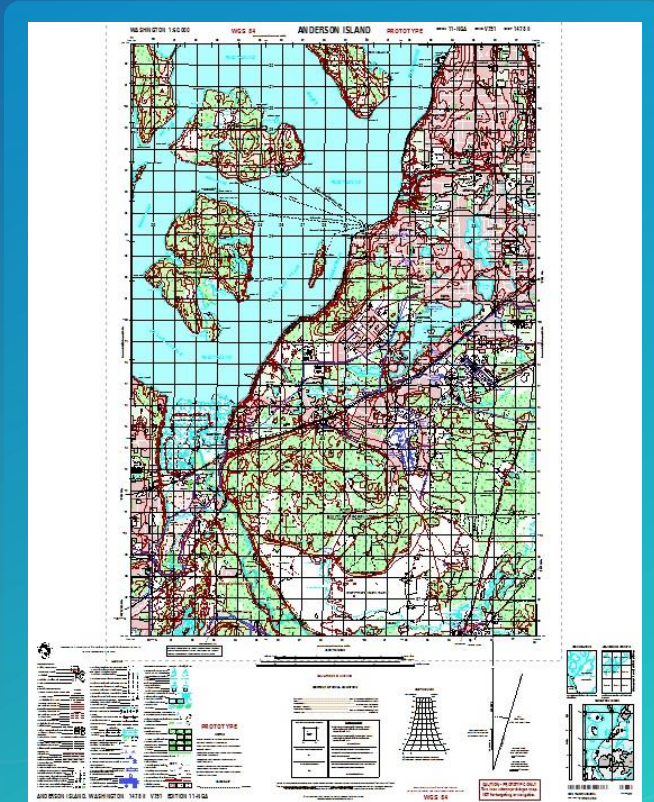


# Cartographic Product

## Evaluating the Map Sheet



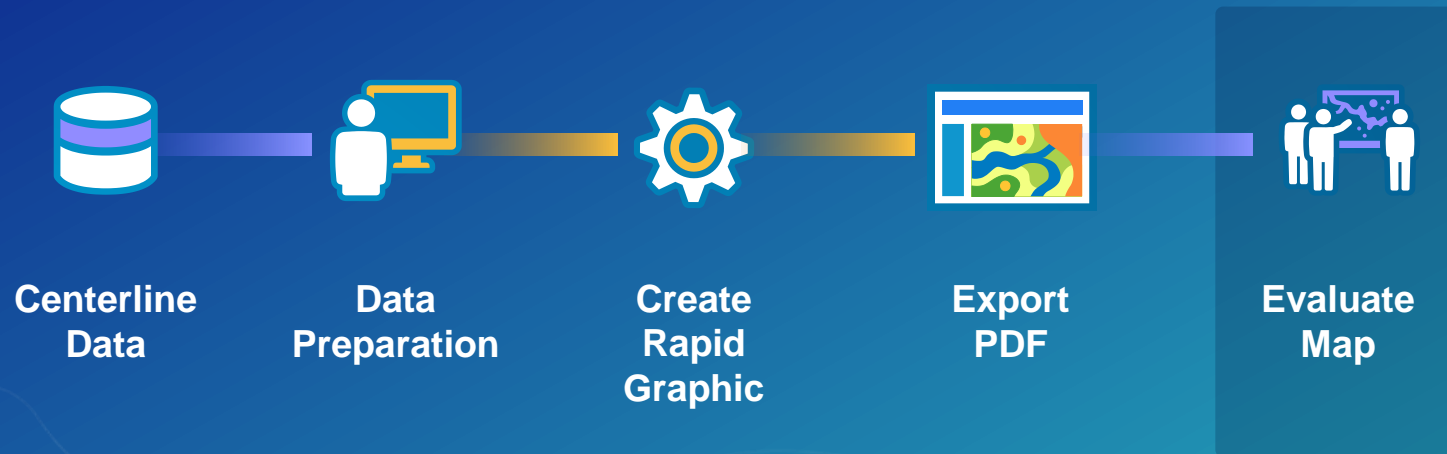
**Rapid Mapping**





# 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



**Cartographic  
Product**

# Cartographic Automation

Expediting the Desktop Map Creation Process





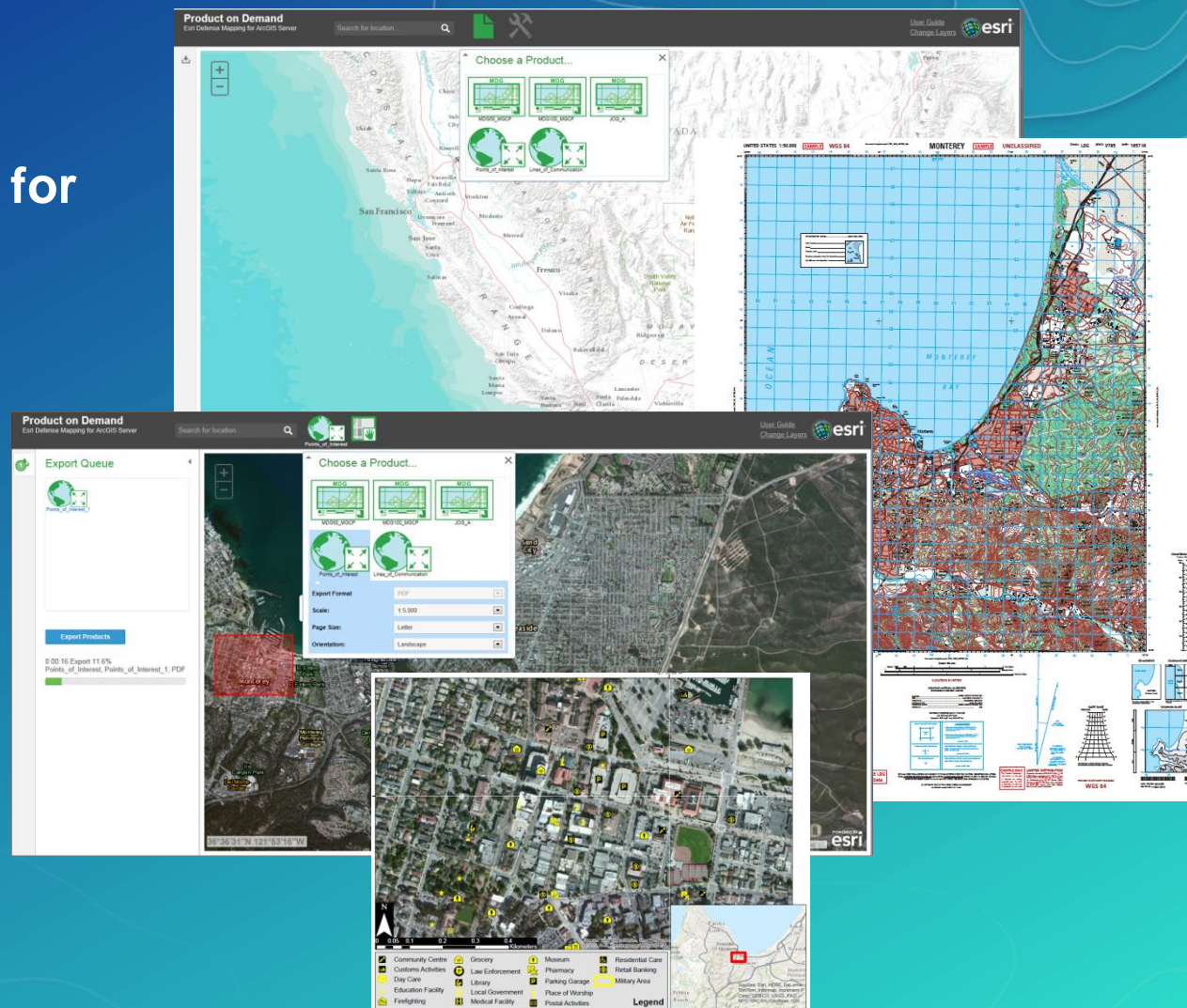
# Product on Demand

Esri Defense Mapping for Server

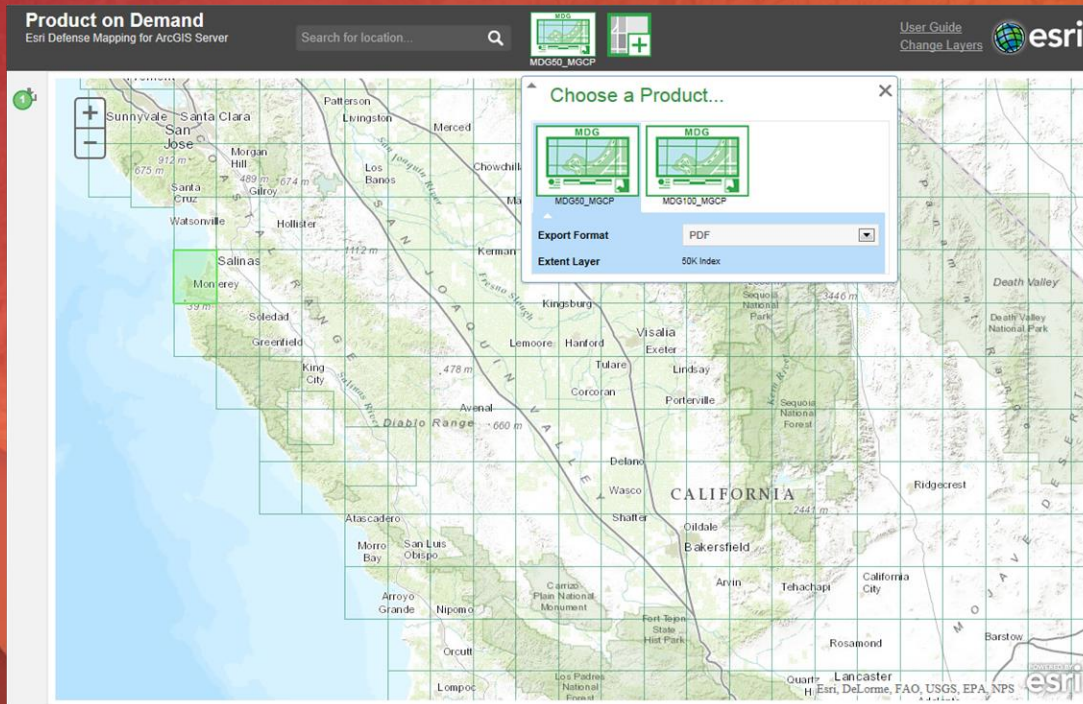


# Esri Defense Mapping Web Application

- Installed with Esri Defense Mapping for Server
- Cartographic Production App
- Self-service
  - Defense Products
  - Custom Products







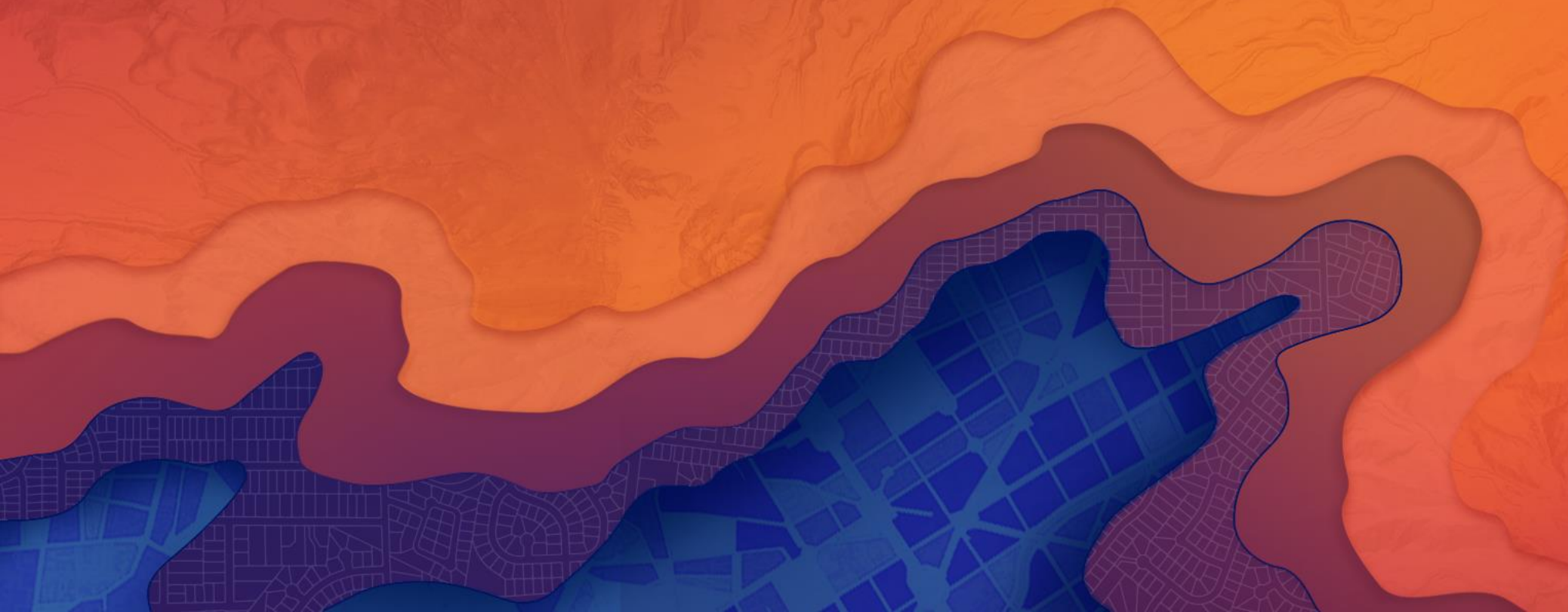
# Product on Demand

Demonstration



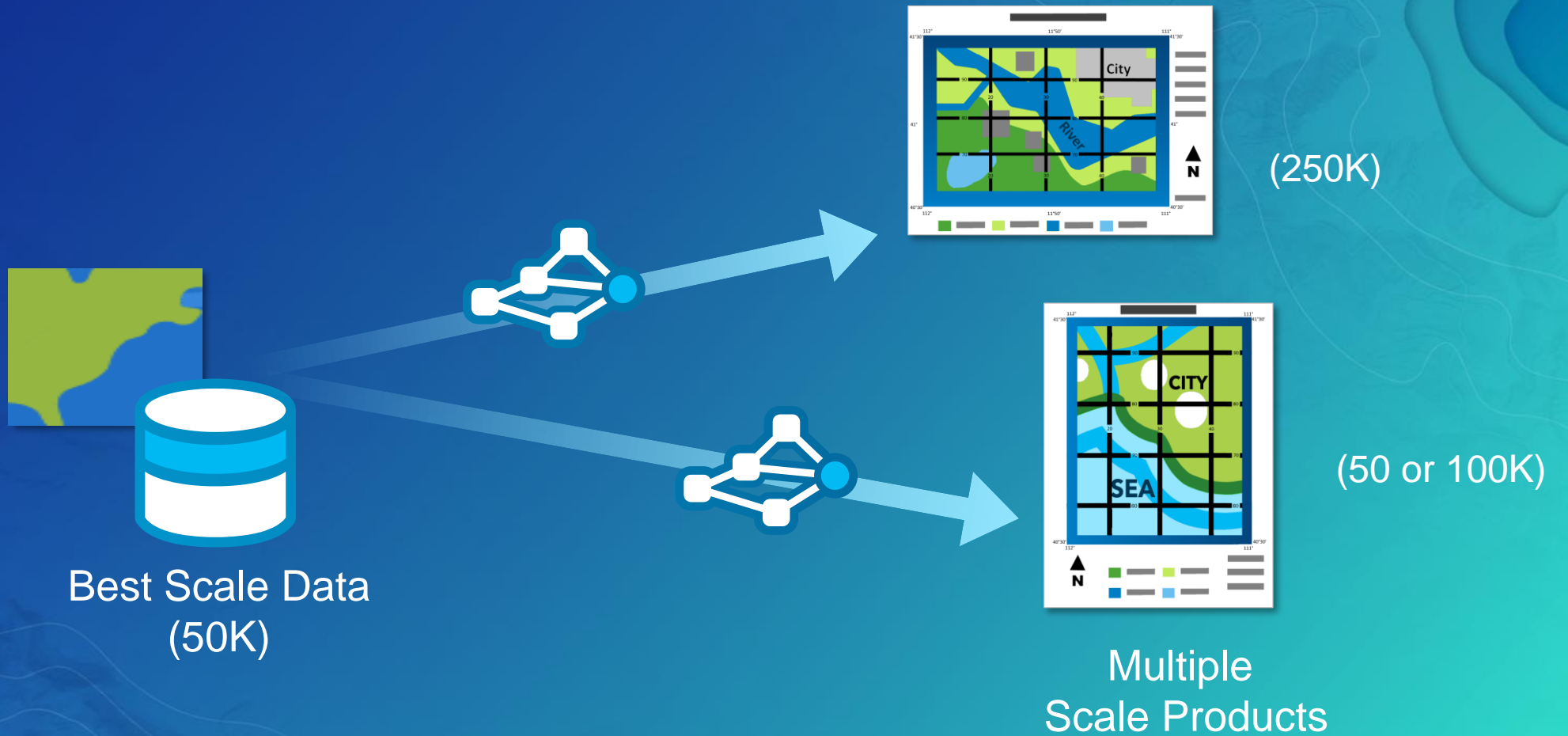
# Generalization

Map Automation with Esri Defense Mapping



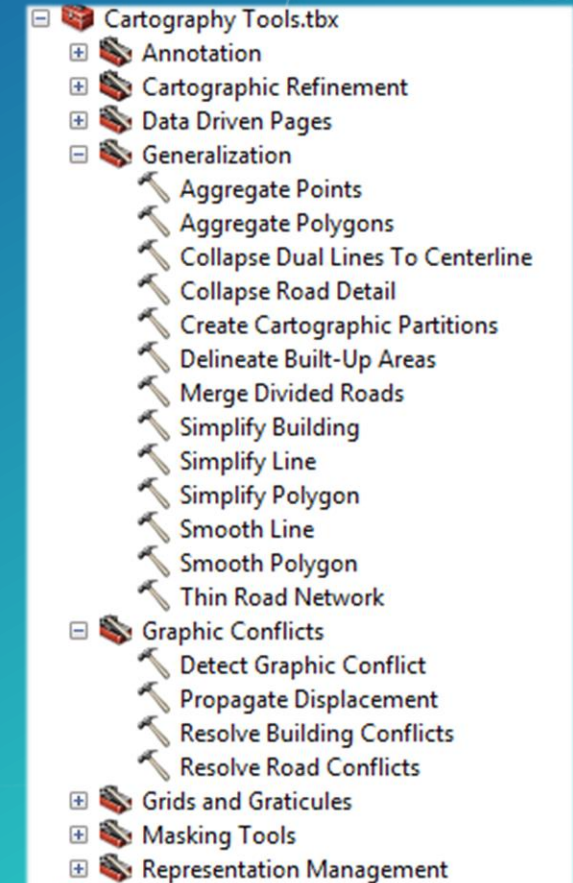
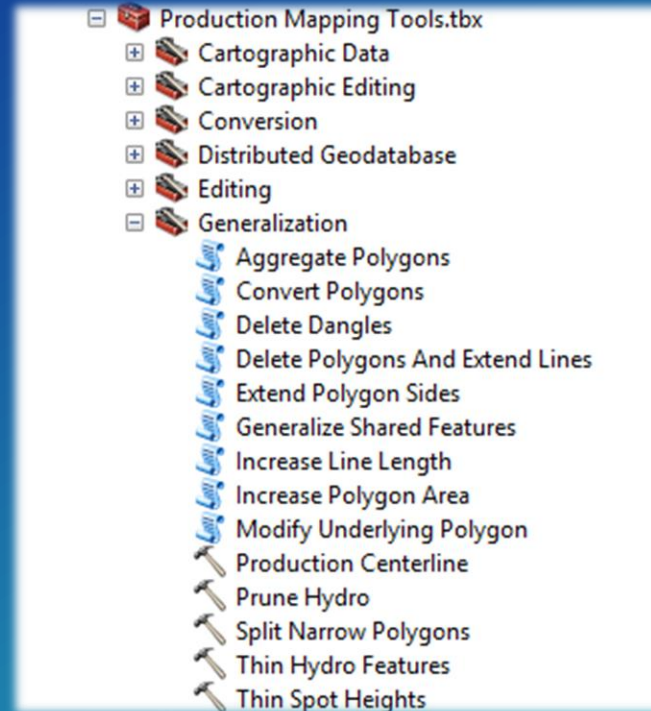
# Automated Generalization

One Database, Multiple Products



# 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

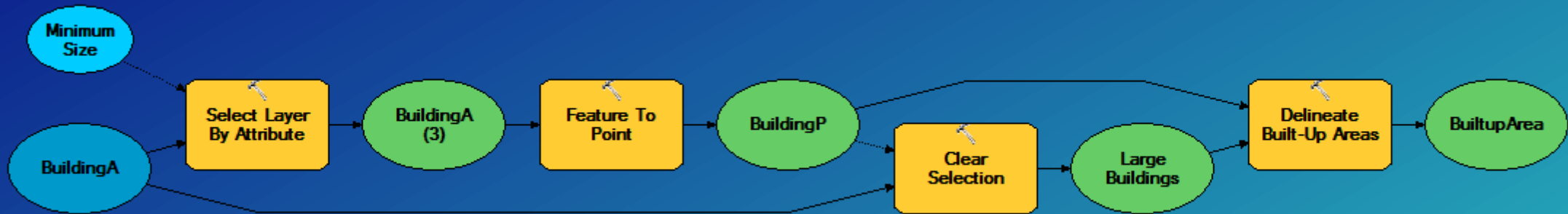
- **Production Dissolve**

- Prune Hydro (10.5.1)
- Remove Cutbacks
- Remove Self Intersections
- Repair Bad Geometry
- Split Narrow Polygons (10.5.1)
- Thin Hydro Features
- Thin Spot Heights

- **Defense Mapping**

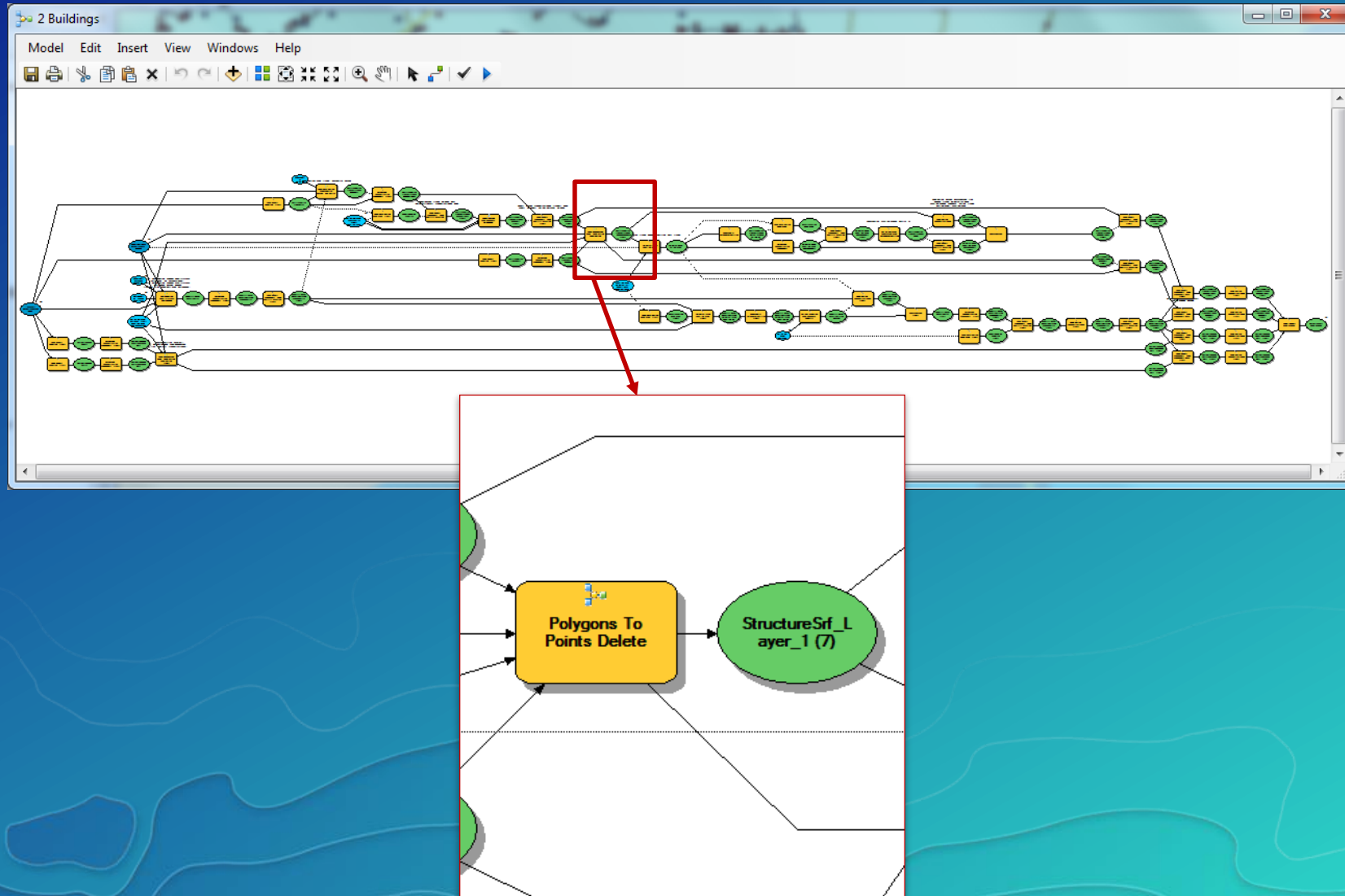
- Hydro Centerline

# Leverage Tools Within Models...



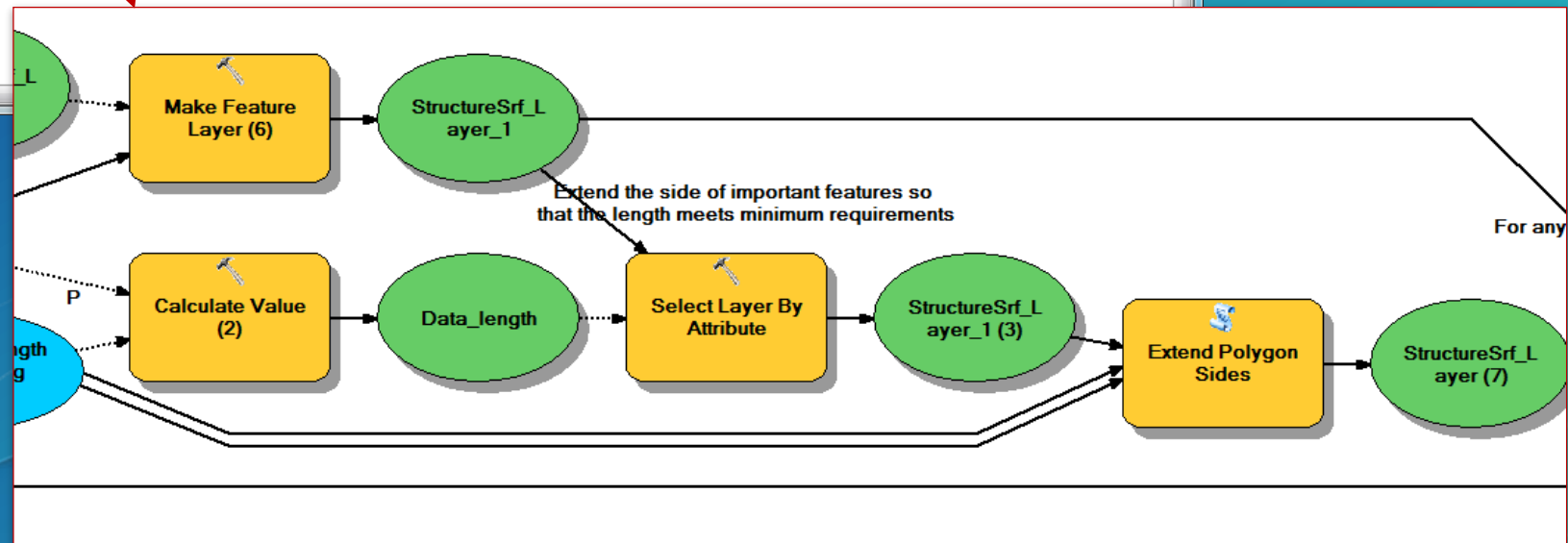
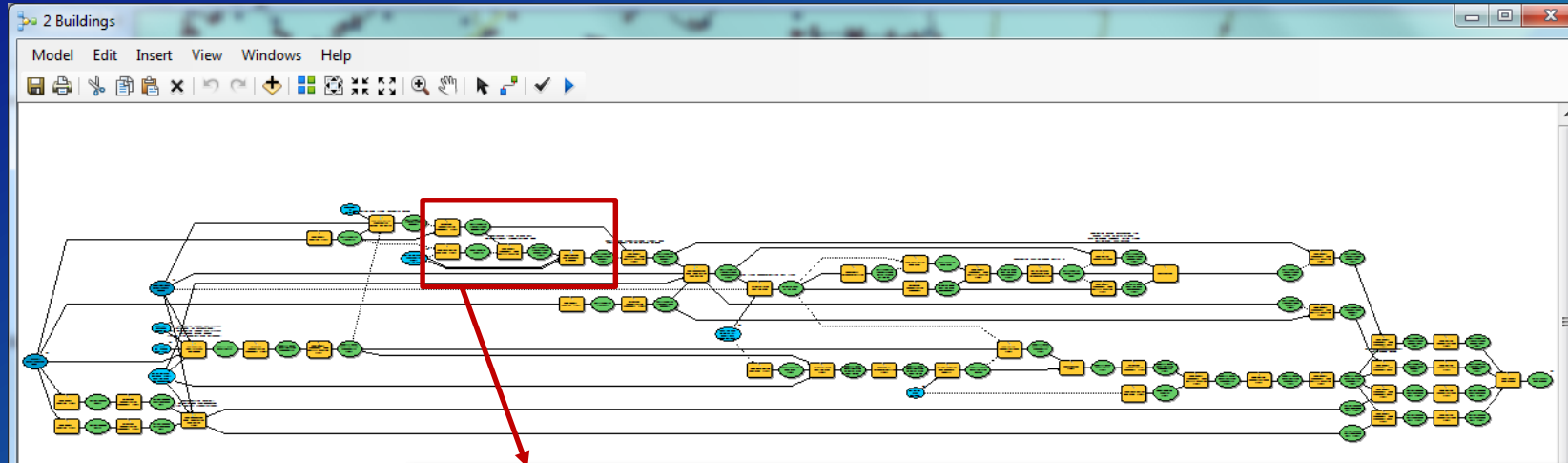
- Cartography Tools.tbx
  - Annotation
  - Cartographic Refinement
  - Data Driven Pages
  - Generalization
    - Aggregate Points
    - Aggregate Polygons
    - Collapse Dual Lines To Centerline
    - Collapse Road Detail
    - Create Cartographic Partitions
    - Delineate Built-Up Areas**
    - Merge Divided Roads
    - Simplify Building
    - Simplify Line
    - Simplify Polygon
    - Smooth Line

## ...and Submodels





# ...and Python



# Generalization in Esri Defense Mapping

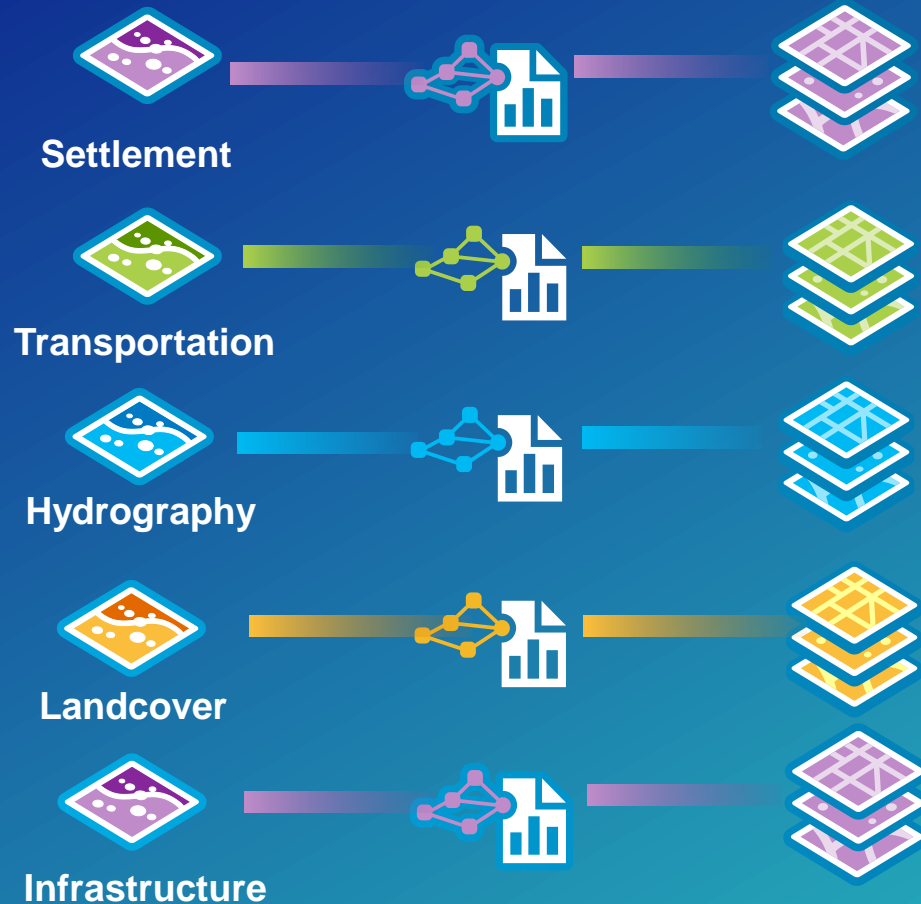
## Theme-Based Approach

Best Scale  
Foundation Content

Elimination / Thinning /  
Aggregation

Simplify / Smooth

Cartographic Automation



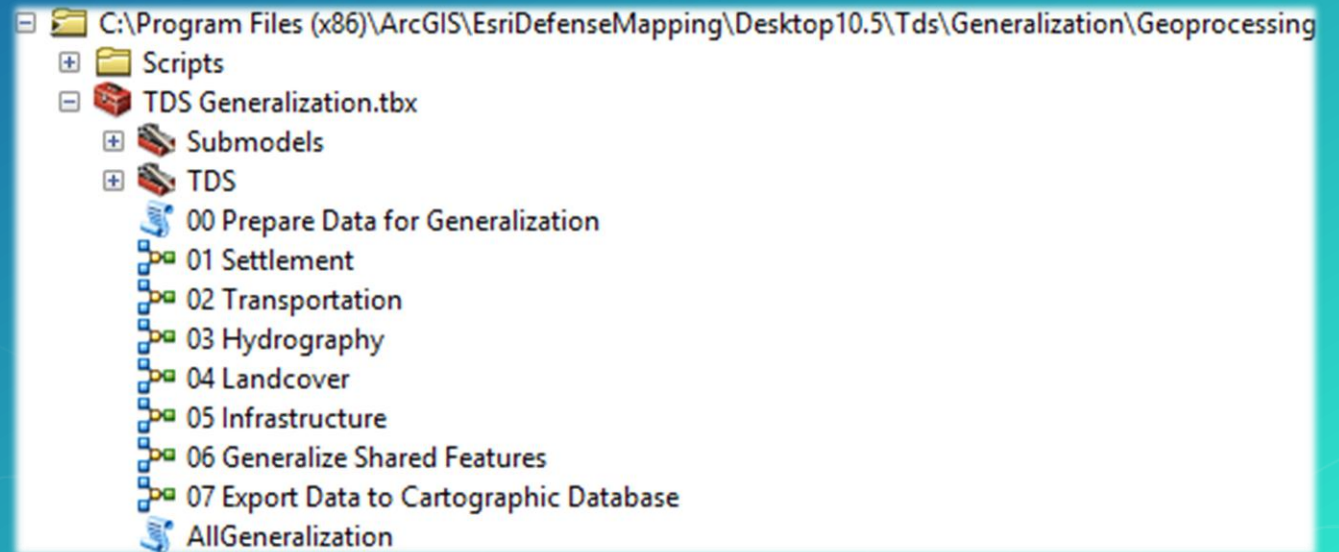
Maintain Relationships

Generalize  
Shared  
Features

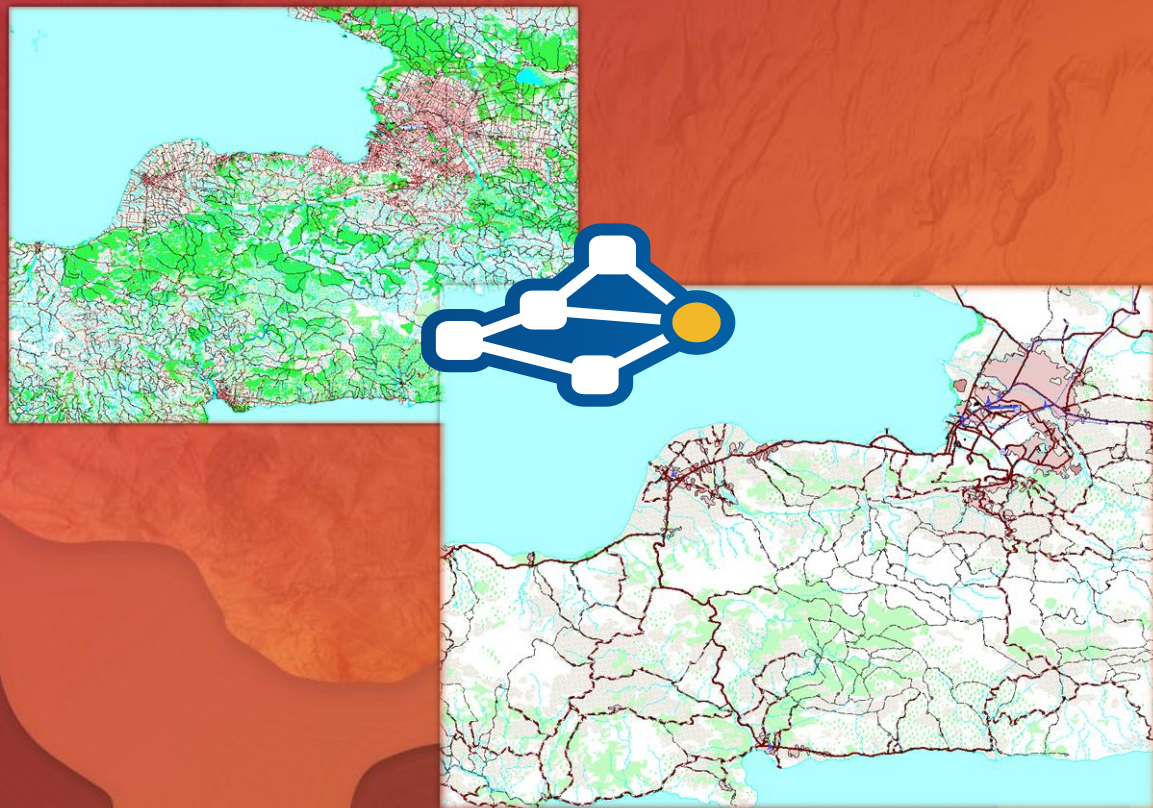


# TDS Generalization in Esri Defense Mapping

- 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

Esri Defense Mapping: Cartographic Map Production





# Summary

## Esri Defense Mapping: Cartographic Map Production

- **Desktop Cartographic Automation**
  - Create Rapid Graphic
- **Product On Demand App (POD)**
  - Esri Defense Mapping for ArcGIS Server
- **Generalization**
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# Survey & Resources

Esri Defense Mapping: Cartographic Map Production

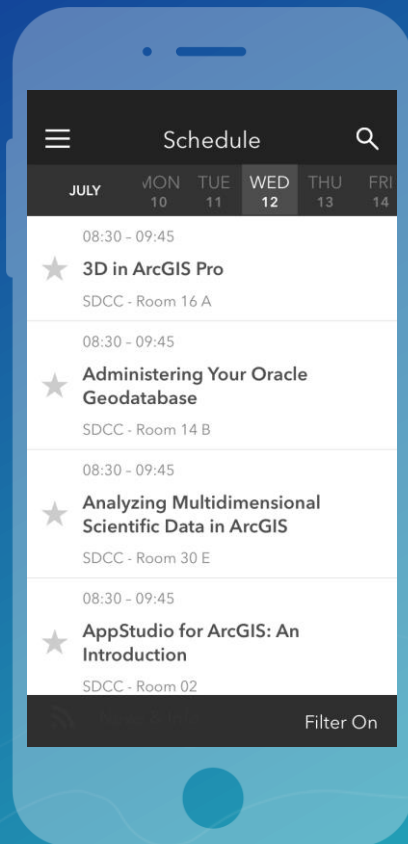


# Please Take Our Survey on the Esri Events App!

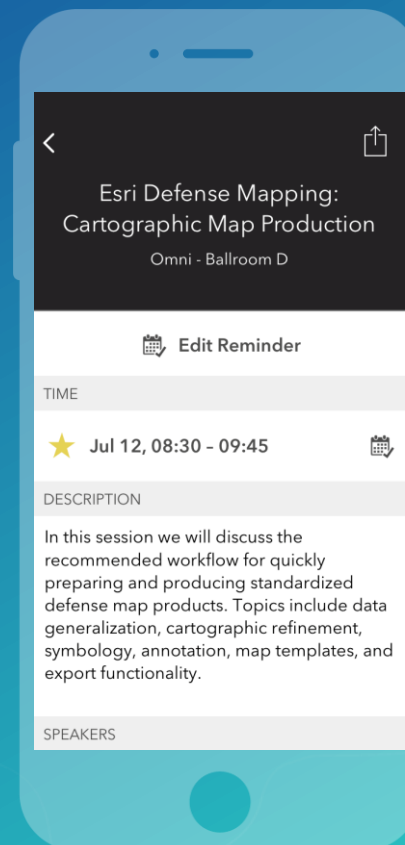
Download the Esri Events app and find your event



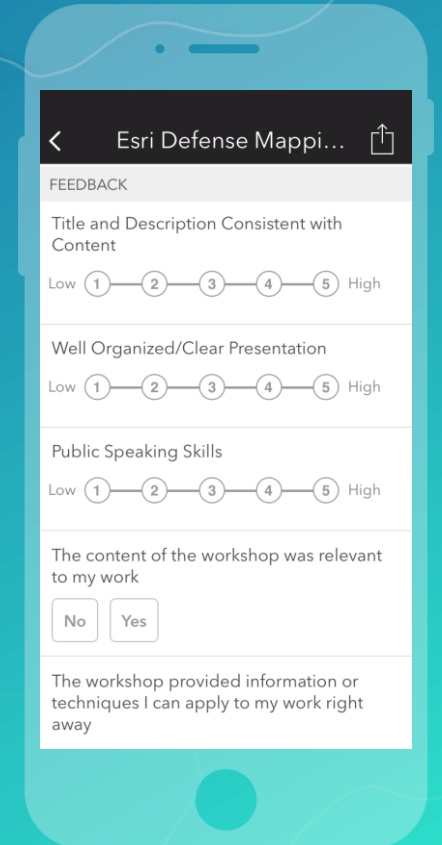
Select the session you attended



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

Esri Defense Mapping: Cartographic Map Production







esri

THE  
SCIENCE  
OF  
WHERE