ArcGIS Pro: An Introduction to Mapping and Visualization

Rami Alouta

Thomas Oaks

2021 ESRI FEDERAL GIS CONFERENCE

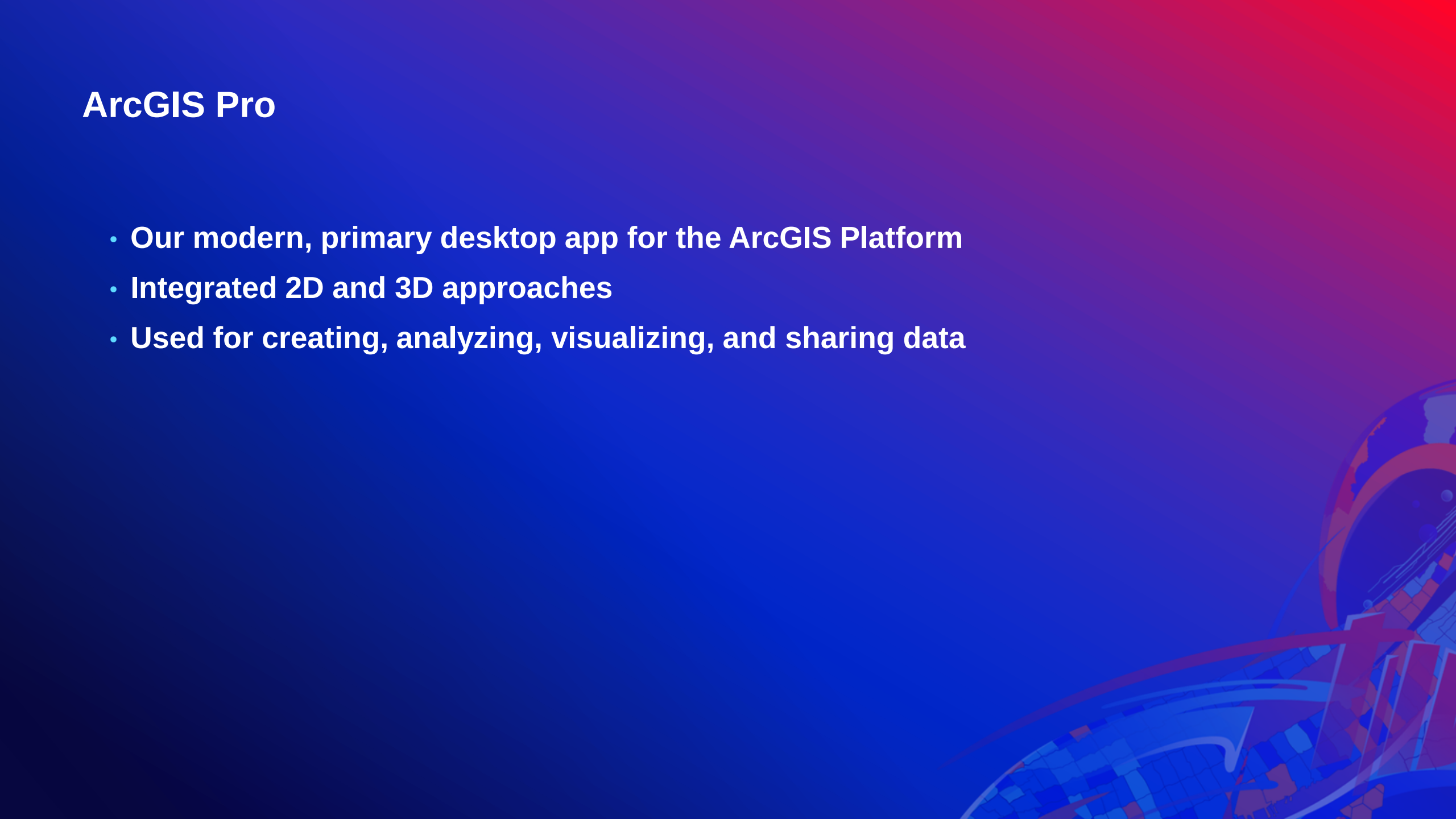
Meet your friendly Esri Presenters

Rami

Thomas

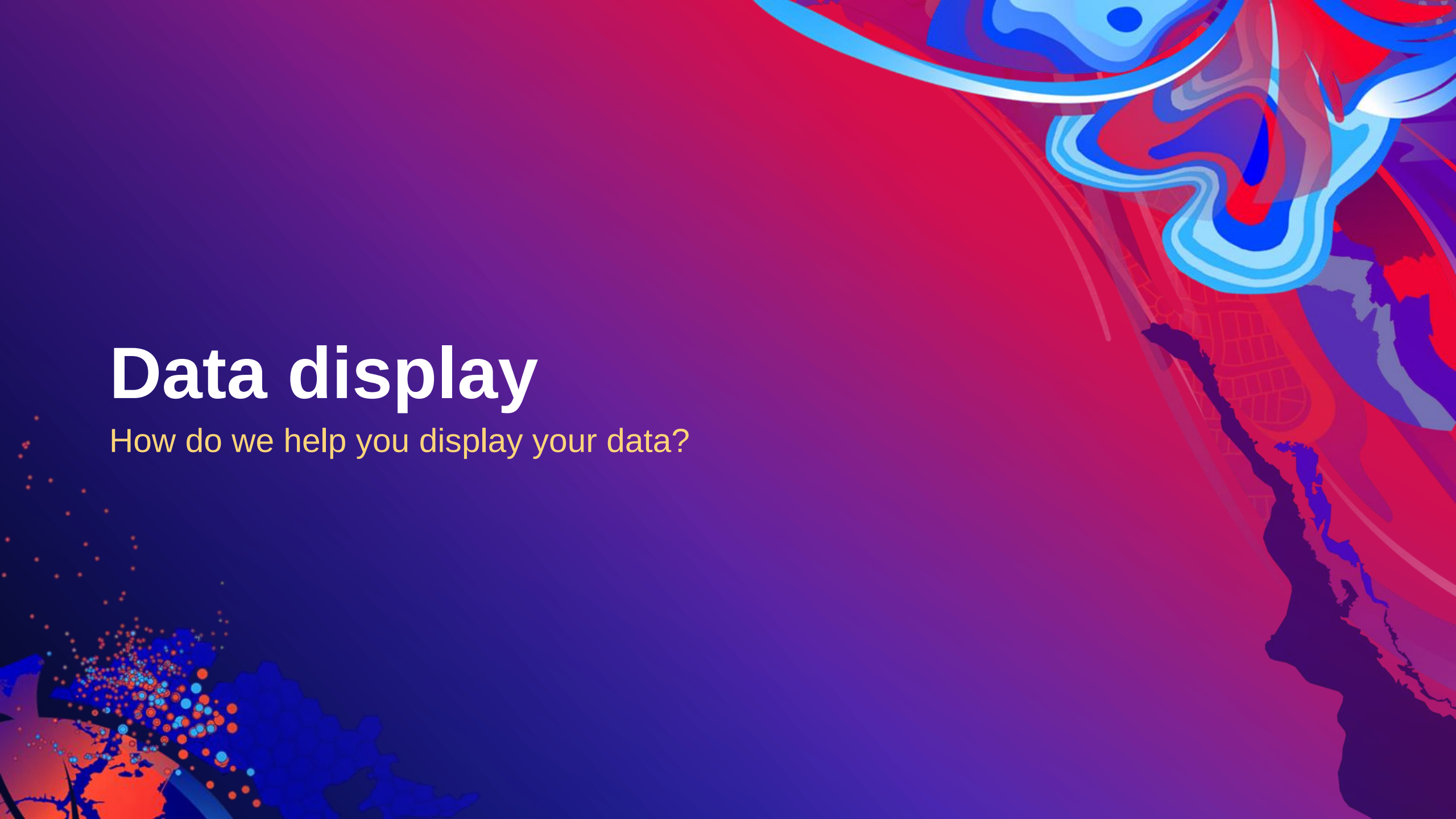
ArcGIS Pro

- Our modern, primary desktop app for the ArcGIS Platform
- Integrated 2D and 3D approaches
- Used for creating, analyzing, visualizing, and sharing data



Mapping and visualization in ArcGIS Pro

- **Common tasks:**
  - **Data display**
  - **Editing and generalizing**
  - **Symbolizing and labeling**
  - **Layouts and sharing**



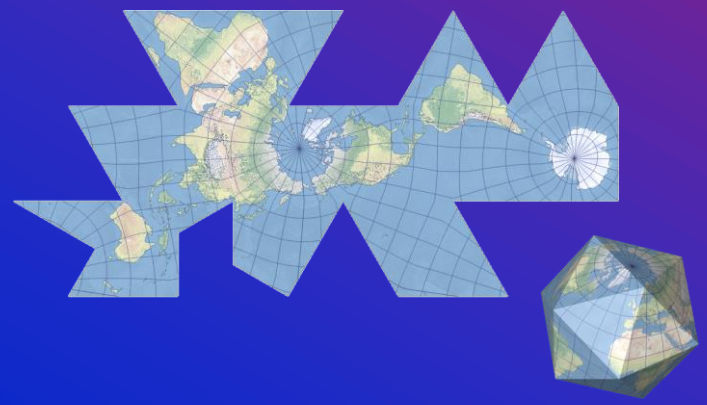
Data display

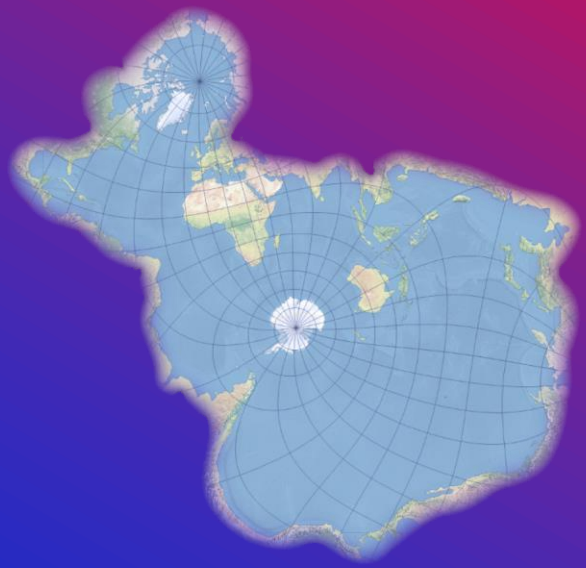
How do we help you display your data?

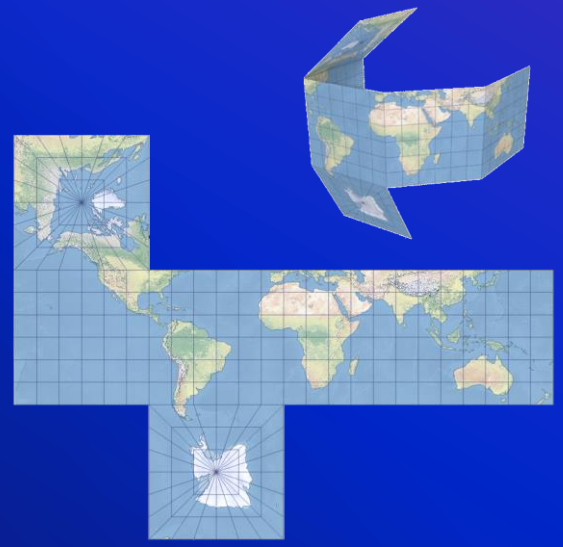
Coordinate system support

List of supported map projections

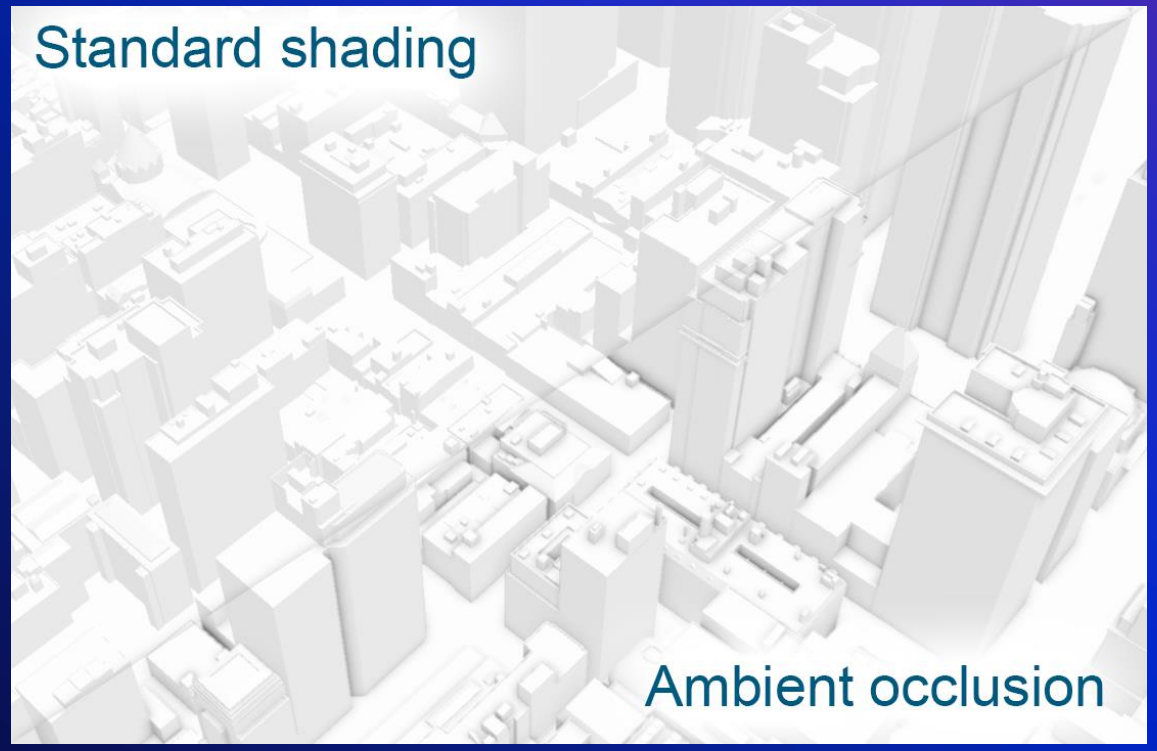
Map projection	Example	Description
Adams square II		This projection shows the world in a square. It is a conformal projection except in the four corners of the square.
Aitoff		This compromise modified azimuthal projection takes a form of an ellipse. It is used primarily for world maps.
Albers		This equal-area conic projection is best suited for land masses extending in an east-to-west orientation at midlatitudes.
Aspect-adaptive cylindrical		This compromise map projection adjusts the parallels to the height-to-width (aspect) ratio of a canvas. The aspect ratio must be between 0.3 and 1.
Azimuthal equidistant		The projection preserves both distance and direction from the central point. It is used primarily for hemisphere maps.
Behrmann		This is a cylindrical equal-area projection with standard parallels at 30°.
Berghaus star		This interrupted projection takes a form of a star, and it is used by the Association of American Geographers (AAG) in their logo.
Bonne		This equal-area projection was historically used to map continents. Its graticule takes a form of a heart.
Cassini		This transverse cylindrical equidistant projection is appropriate for large-scale maps with predominantly north-to-south extent.
Compact Miller		This compromise cylindrical world map projection compresses polar areas in comparison to the Miller projection.
Craster parabolic		This pseudocylindrical equal-area projection is primarily used for thematic maps of the world.
Cube		This is a faceted projection consisting of six square sides that can be folded into a cube.

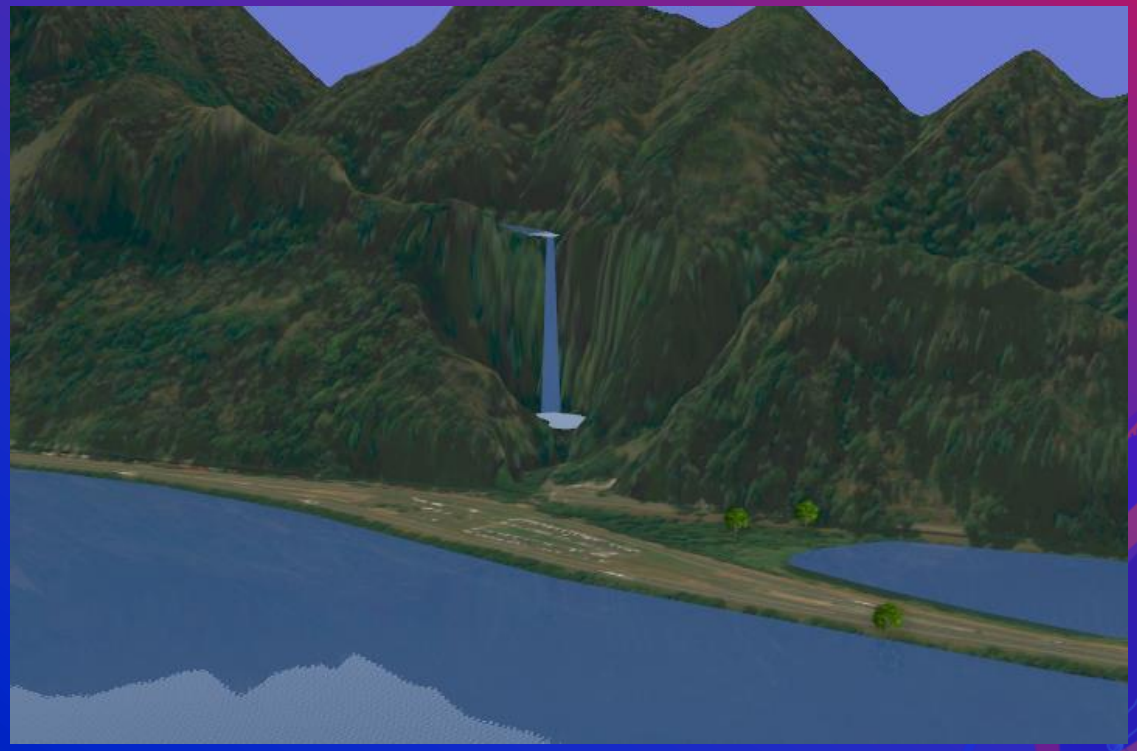






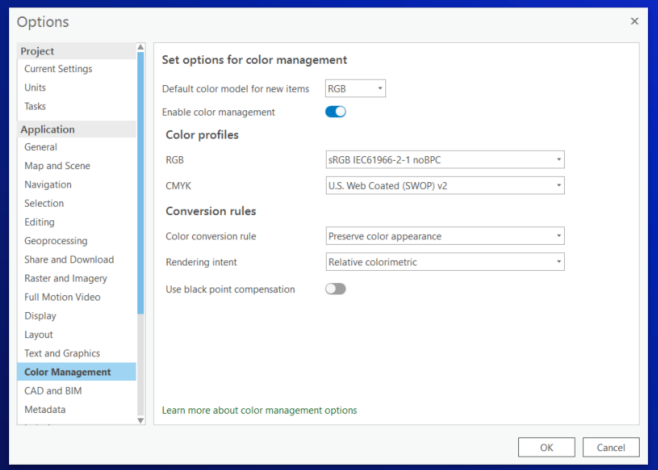
Graphics



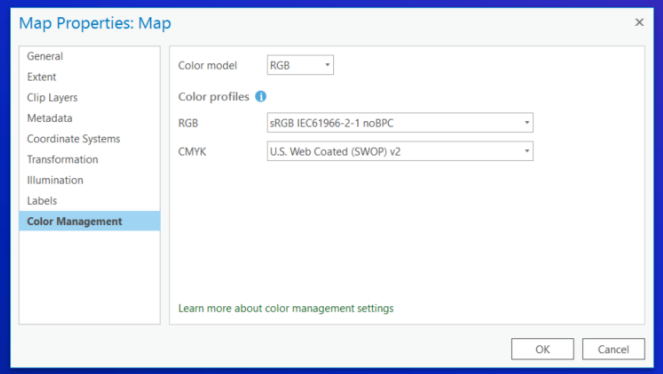


Color management

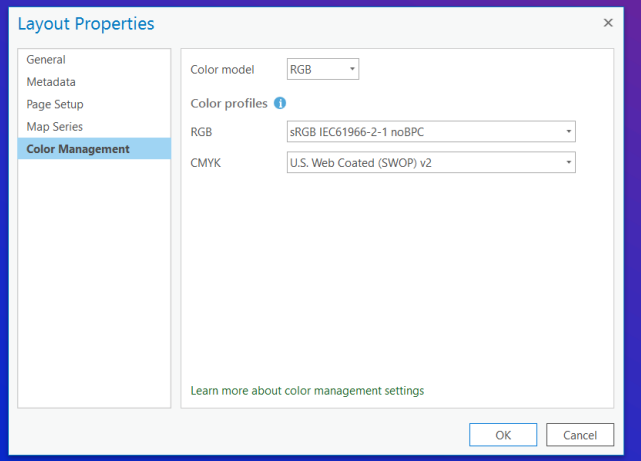
App settings



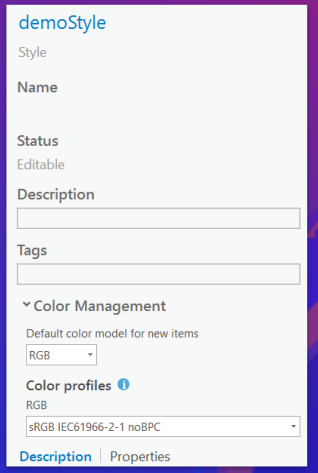
Map properties



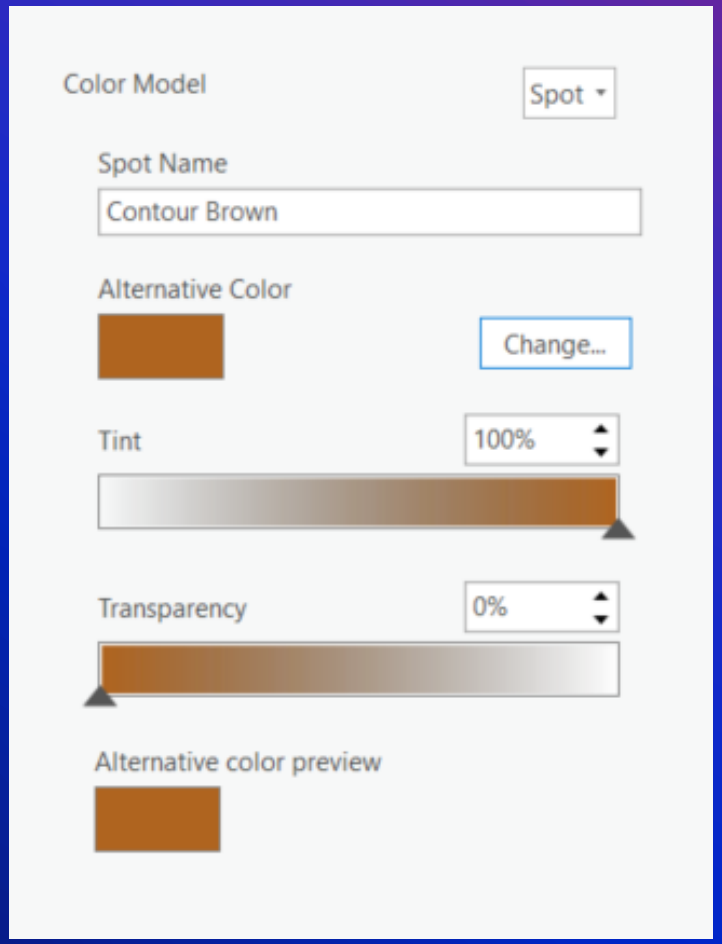
Layout properties



Styles



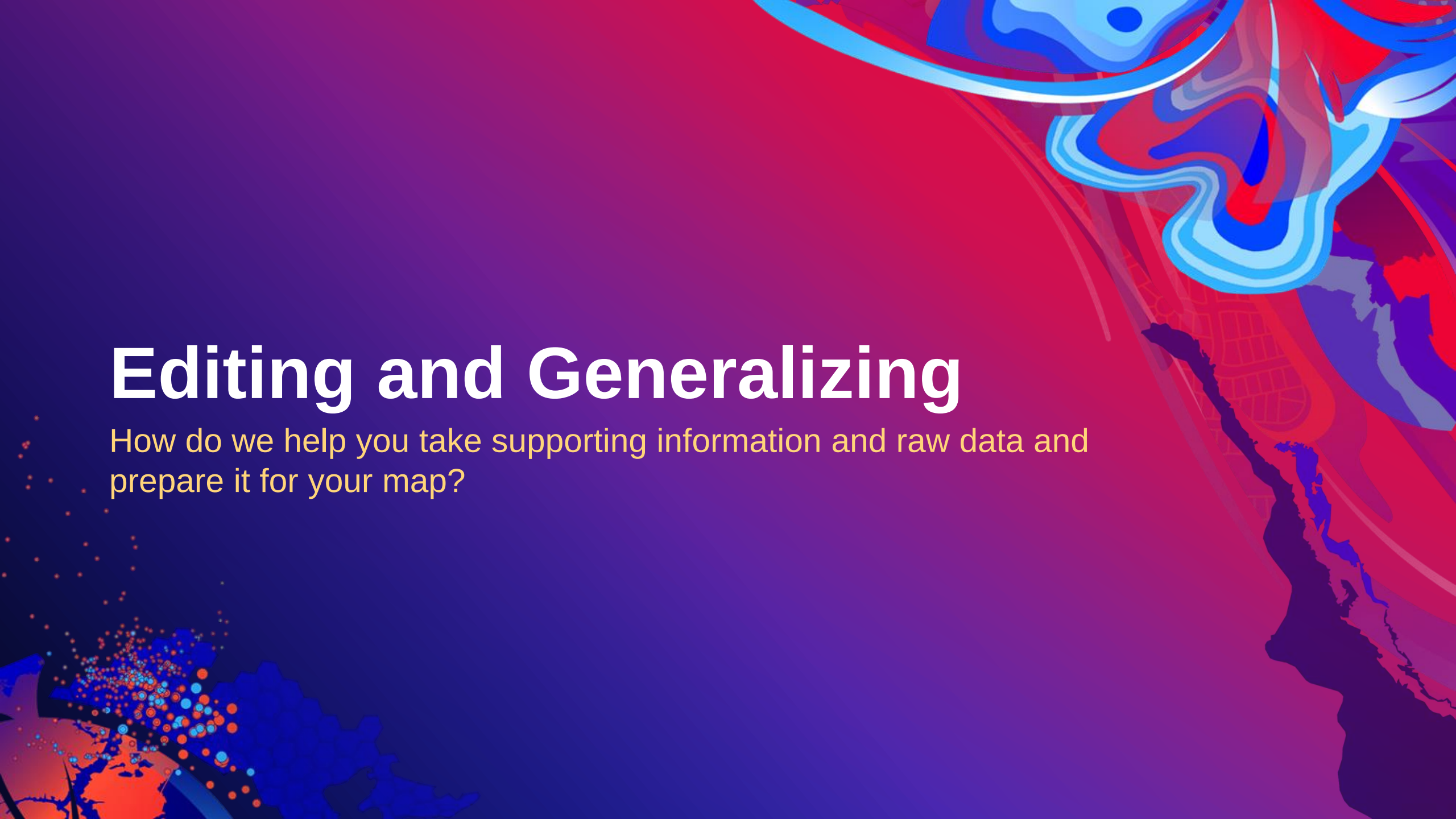
Spot colors


Color Model
Spot
Spot Name
Contour Brown
Alternative Color
Change...
Tint
100%
Transparency
0%
Alternative color preview

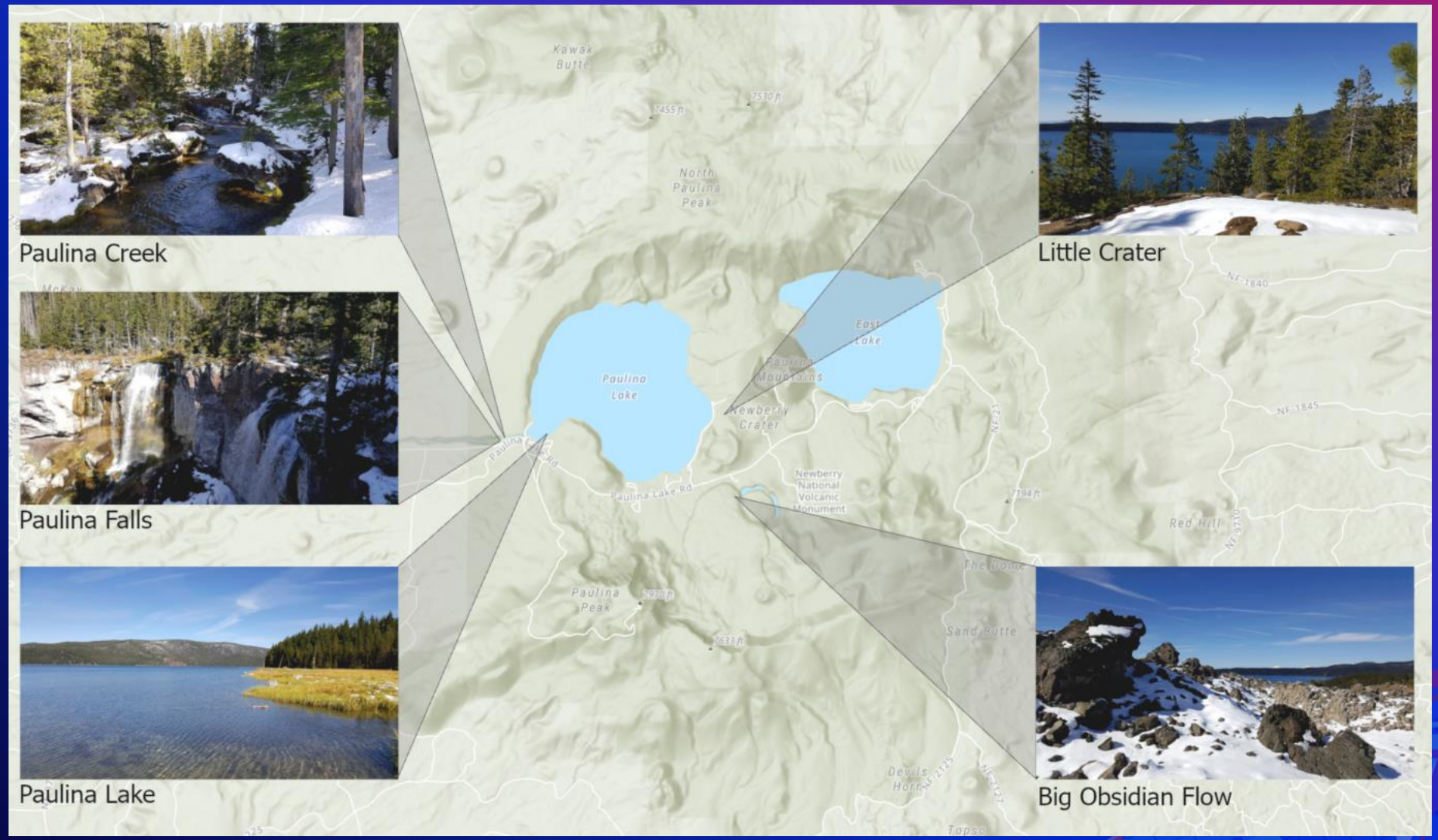
Demo

Editing and Generalizing

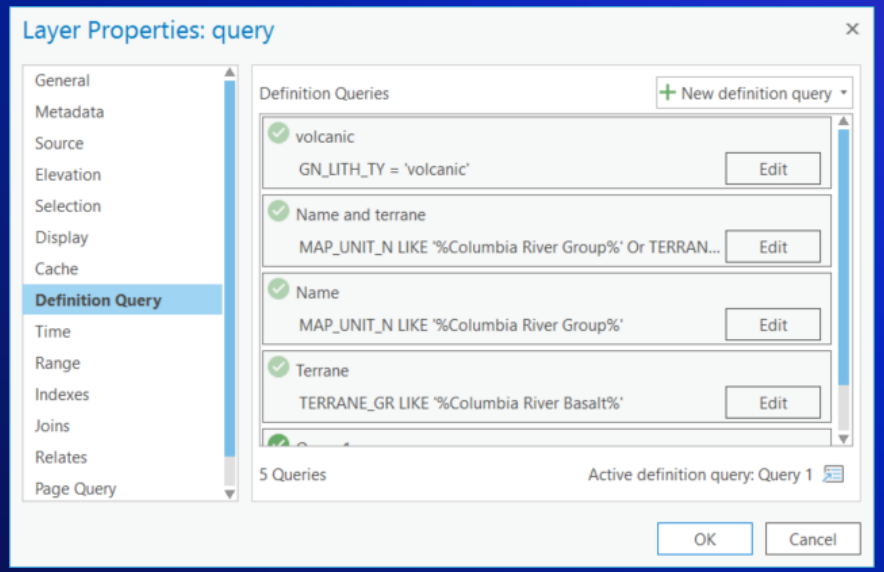
How do we help you take supporting information and raw data and prepare it for your map?

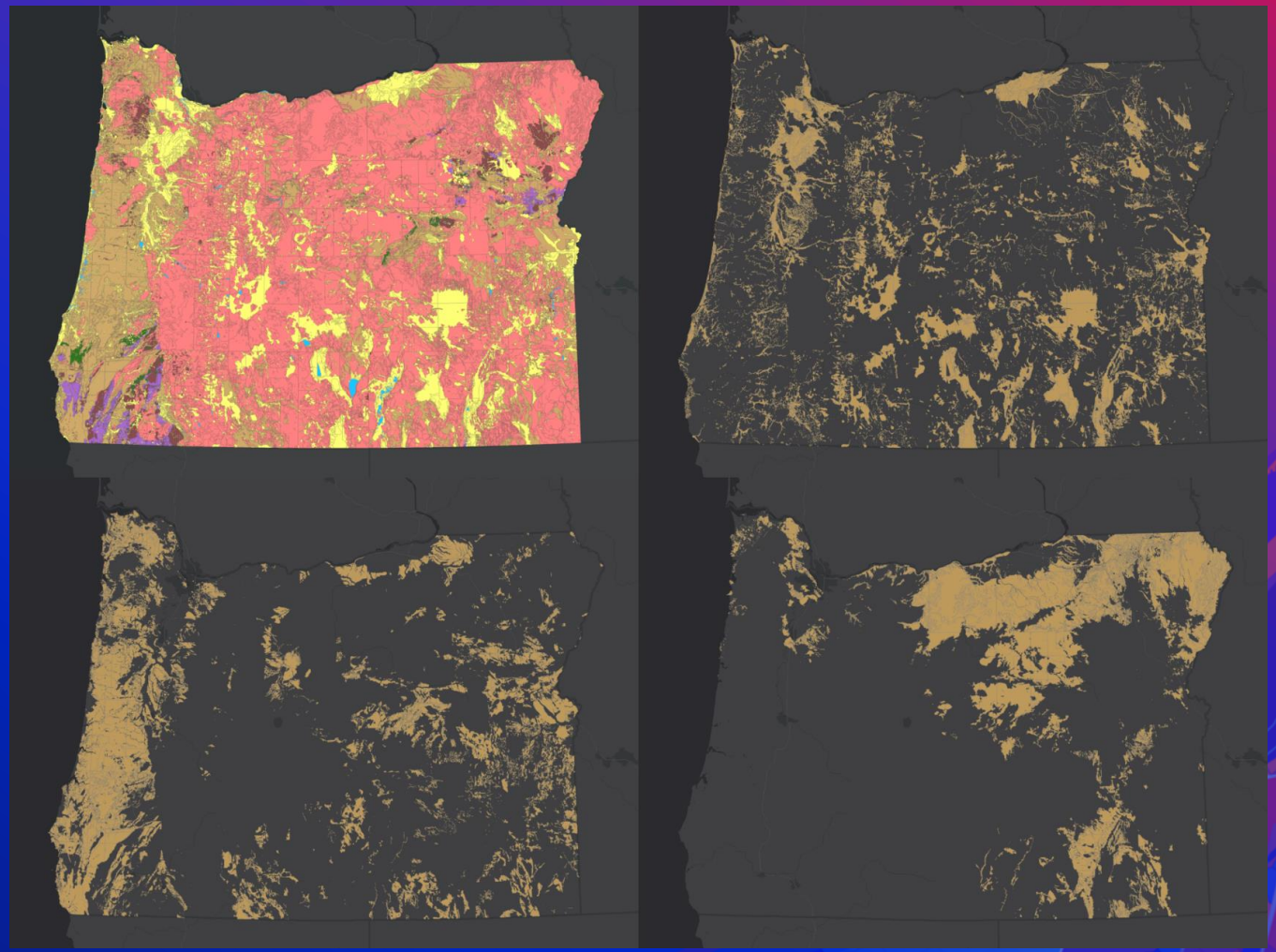


Map graphics

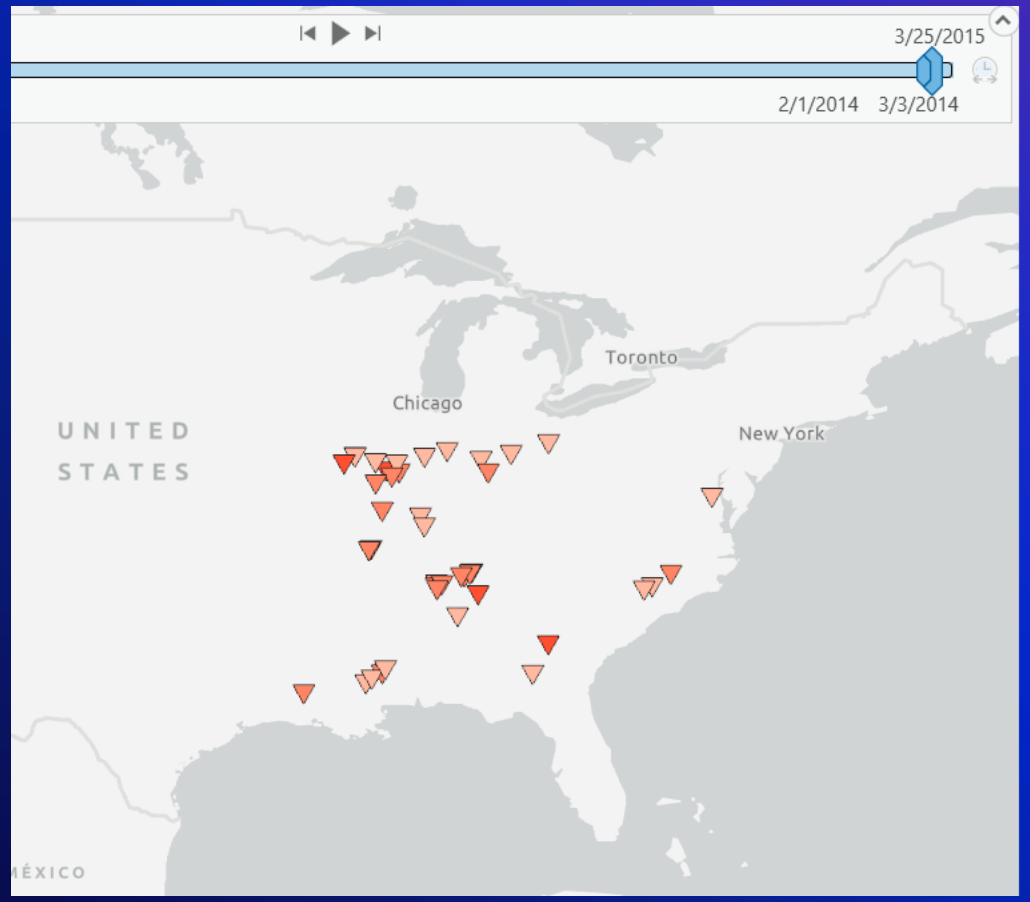


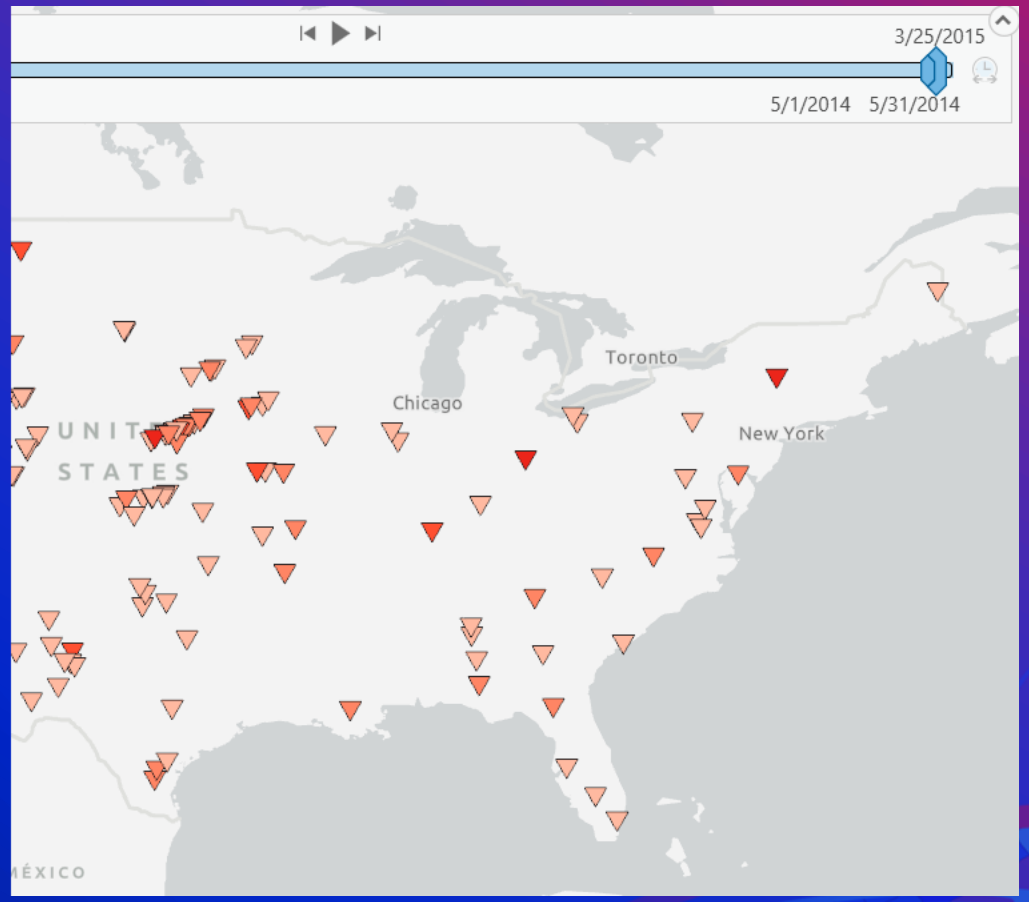
Definition Queries



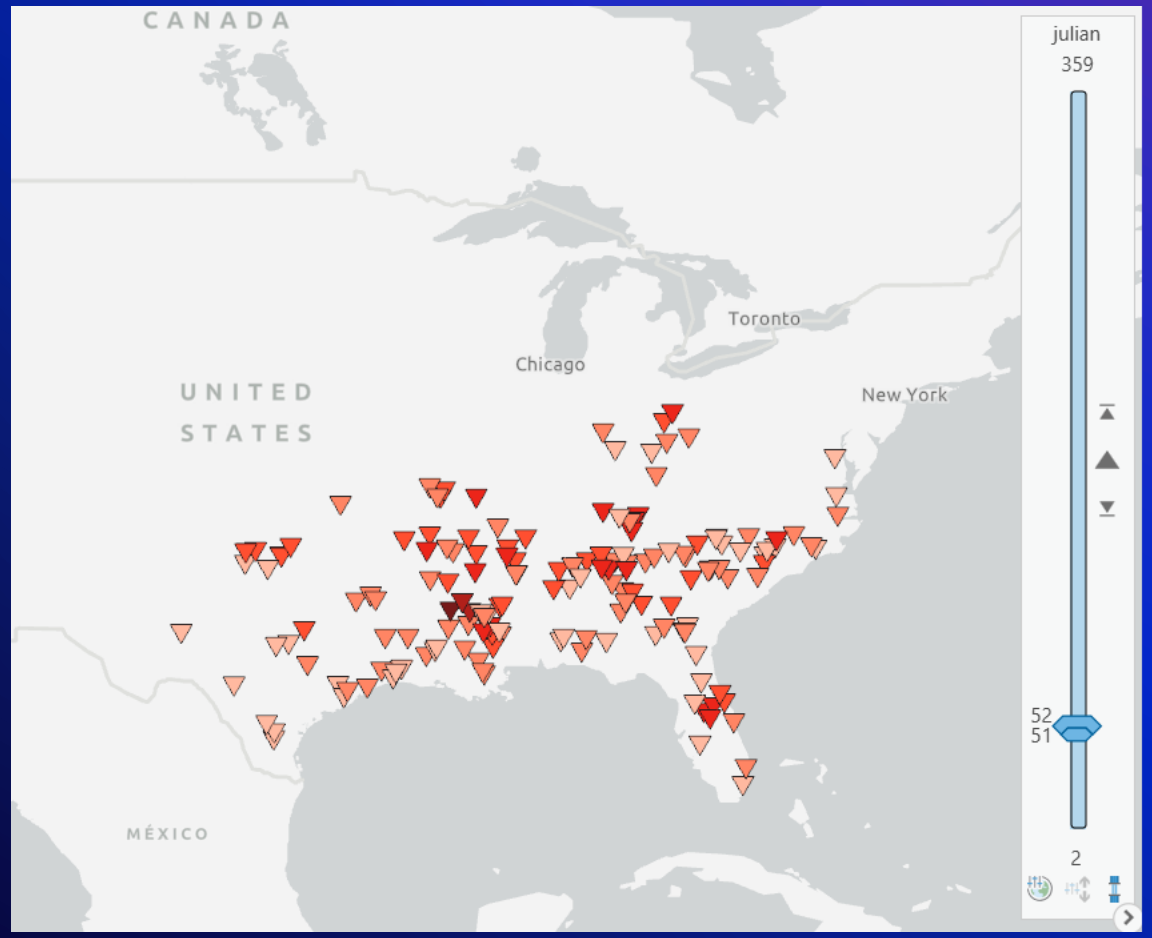


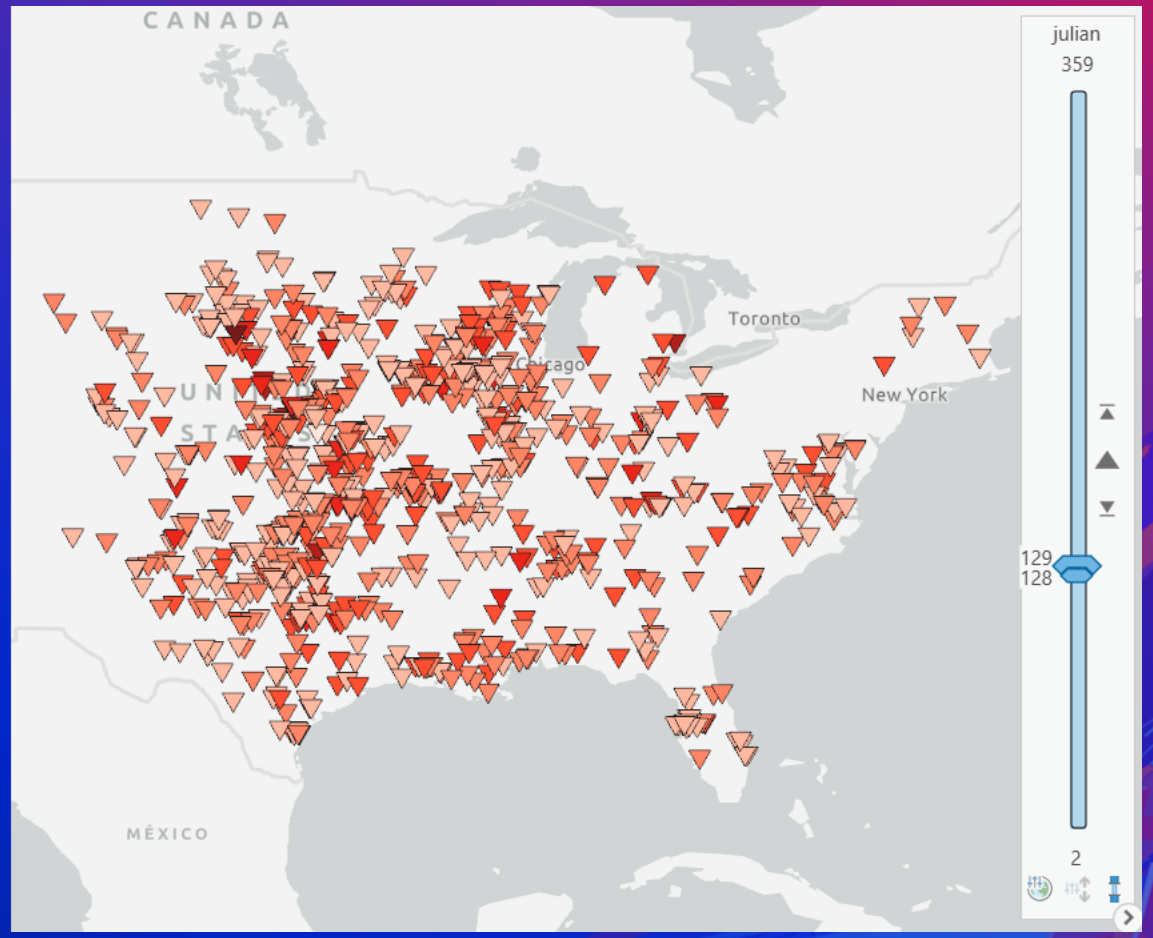
Display by scale, range, and time



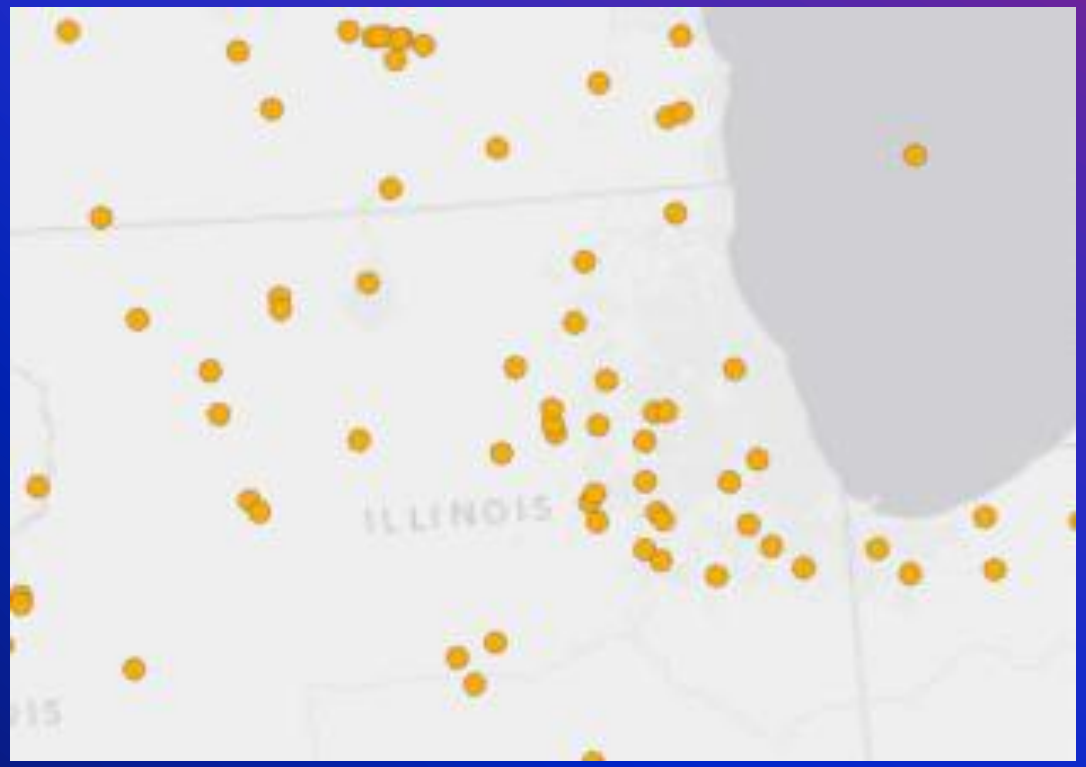


Display by scale, range, and time





Feature binning



Demo

Meet your friendly Esri Presenters

Rami

Thomas

Symbolizing and Labeling

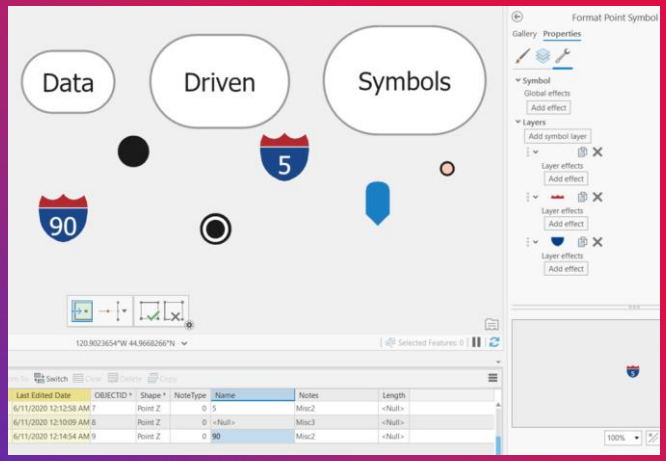
How do we help you make your data clear, elegant, and engaging?

Symbology ArcGIS Pro

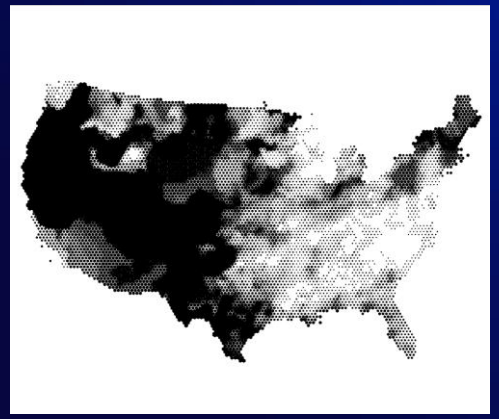
Symbol Layers

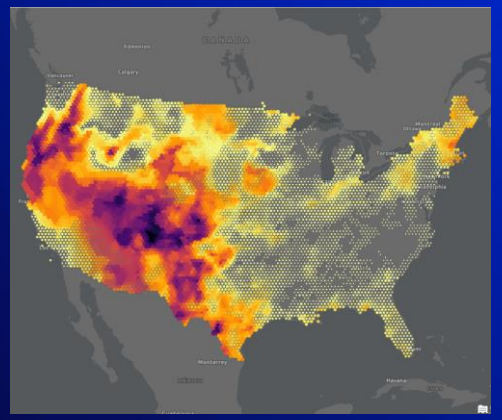
- Override the default drawing order
- Symbolize by attribute
- Import custom imagery
- Author multi scale symbology

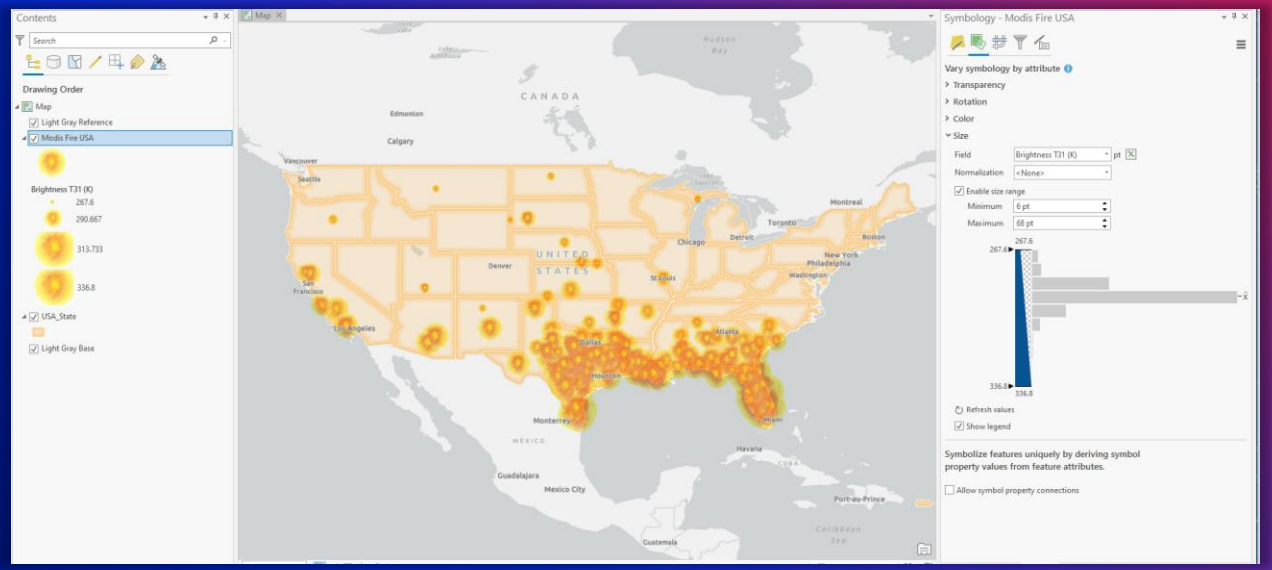
Fire Symbology – PNG



Fire USA - MODIS



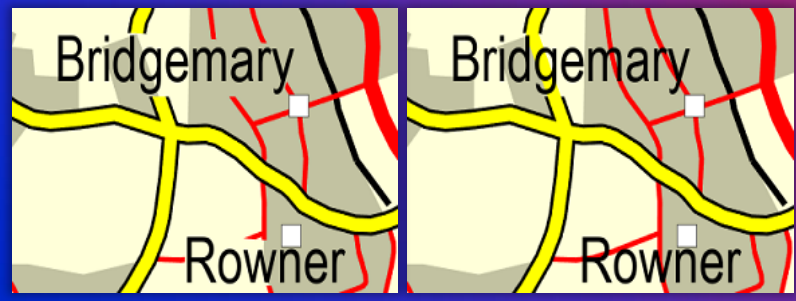




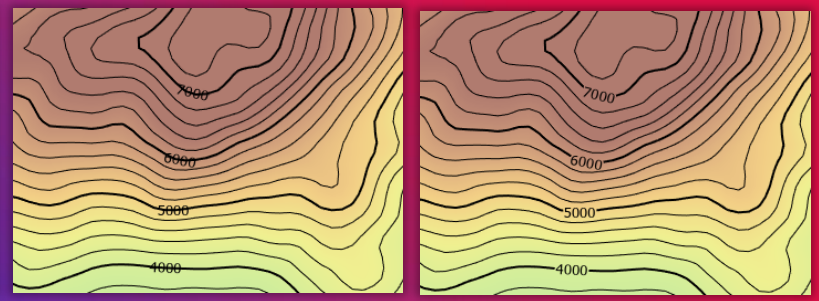
Symbology ArcGIS Pro

Mask Features

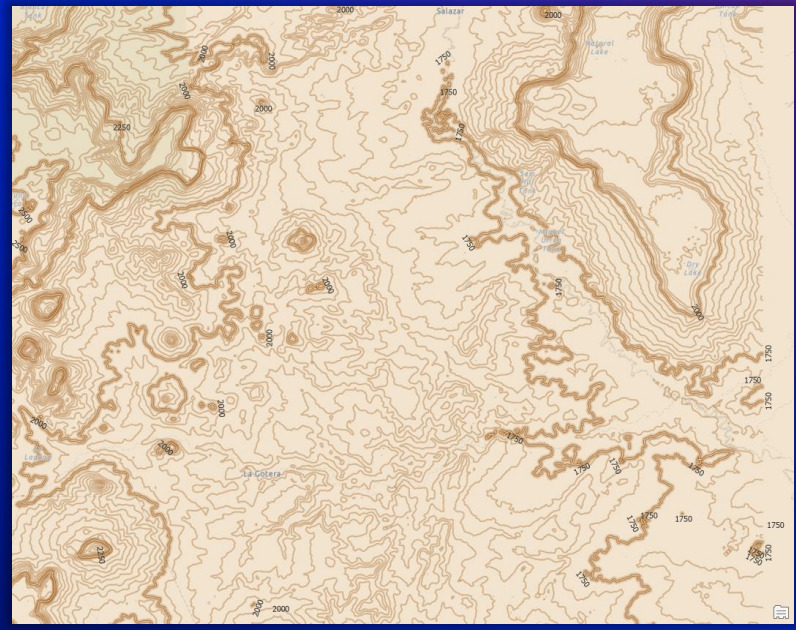
- Clarify dense or detailed map content
- Masking ensures the readability of the text
- Any feature layer can be masked.
- Only polygon feature layers can mask features.
- Geoprocessing tools to create masks:
  - Cul-De-Sac
  - Feature Outline Masks
  - Intersecting Layers Masks

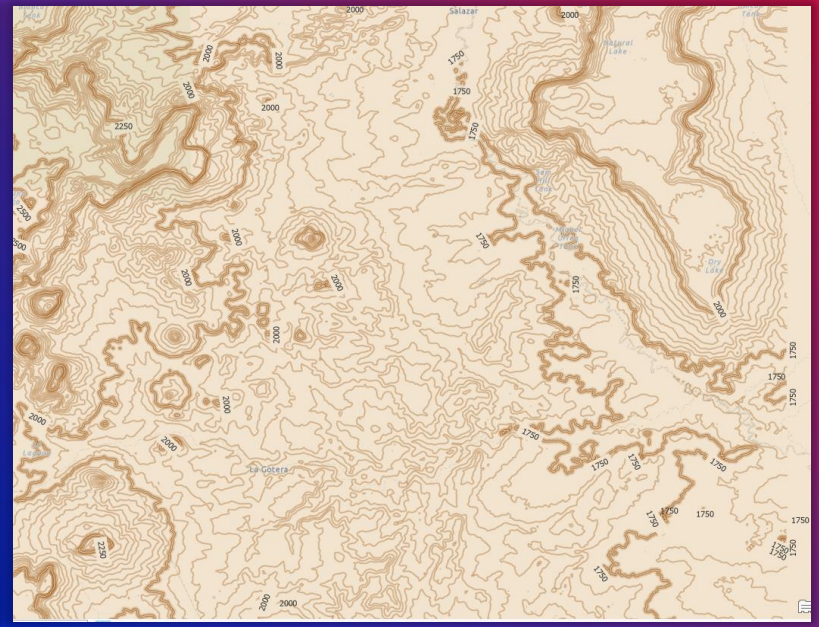


Road Names Masking



Contour Lines Masking





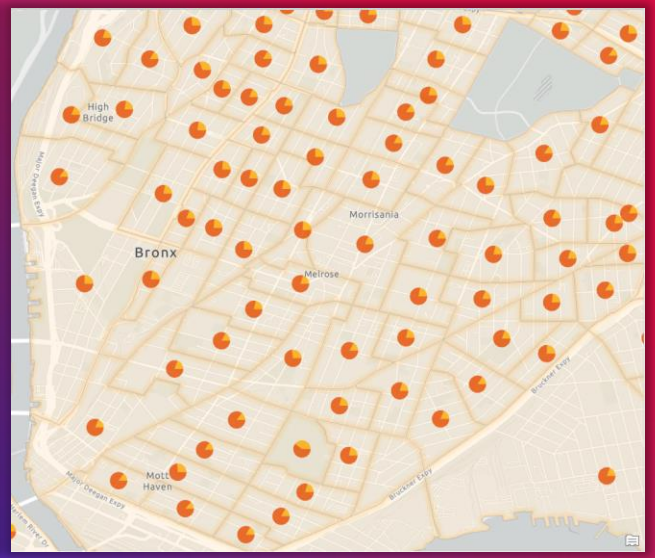
Contour Lines Masking

Symbology ArcGIS Pro

Charts

- Represent dynamic data
- Show qualitative and quantitative differences between attributes
- Supports points, lines and polygons features.
- Chart types:
  - Stacked Chart
  - Bar Chart
  - Pie Chart

California covid-19 cases



NYC poverty tracts

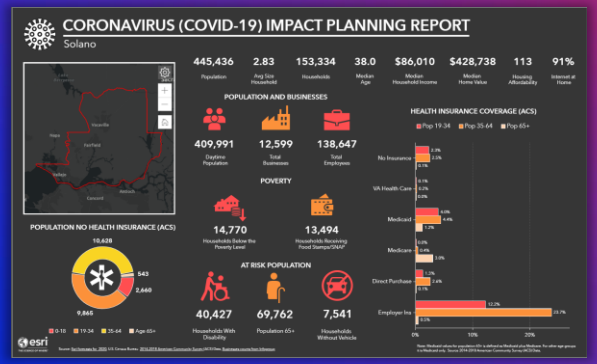
New Orleans ethnicity percentage

Bay Area count of people involved in car crashes

Symbology ArcGIS Pro

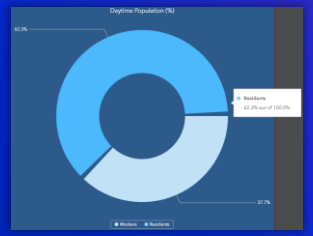
Infographics

- Key Indicators
- Summarized information for selected locations
- Interactive charts
- Tables
- Maps
- Images

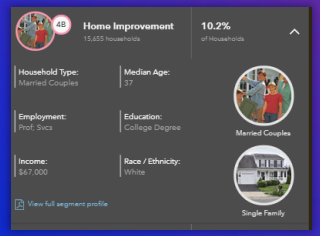


COVID-19 impact

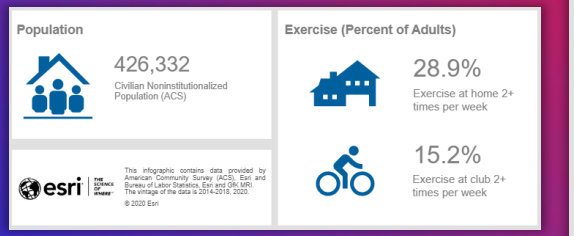
Tapestry



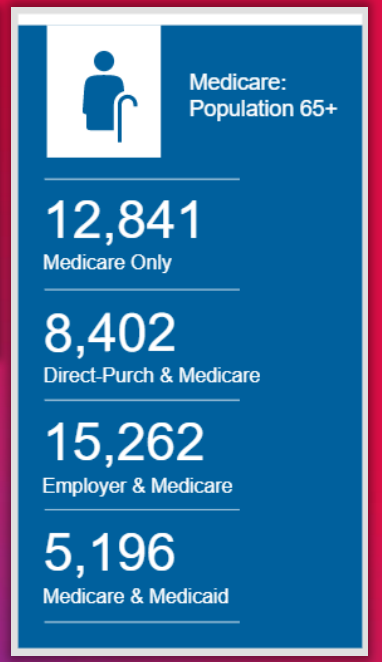
Daytime population

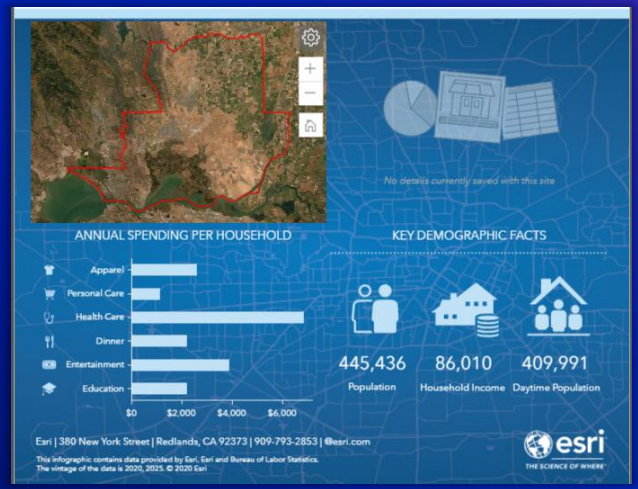


Tapestry segments

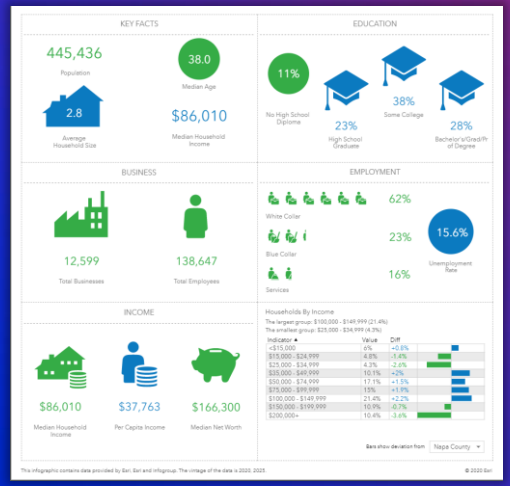


Health care

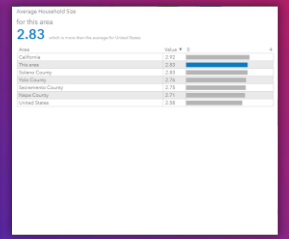


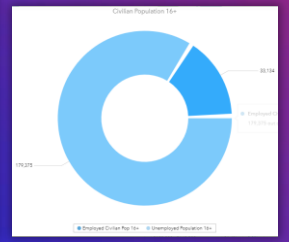


Property details



Key facts

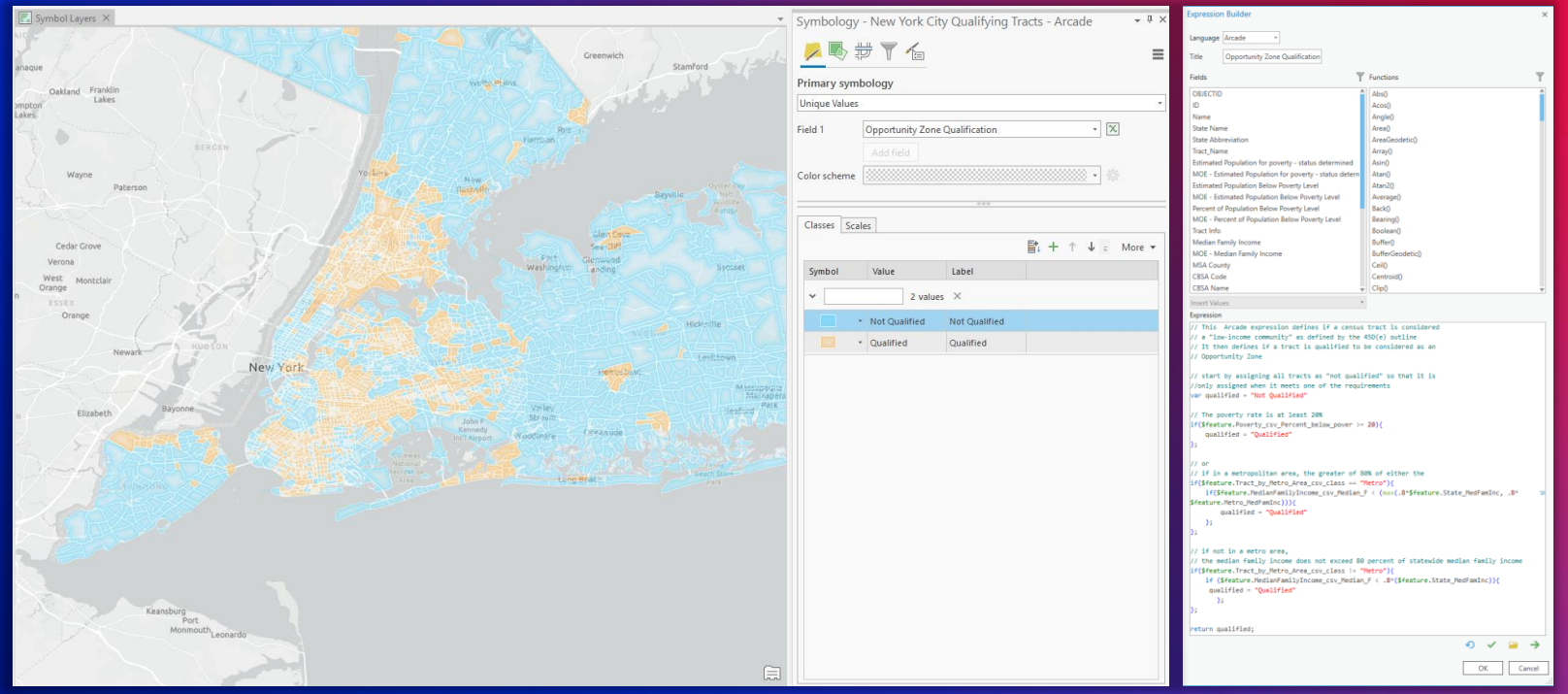




Symbology ArcGIS Pro

Arcade

- Create in memory fields
- Calculate data values on the fly
- Dynamic symbology
- Simple scripting language built on JavaScript (single line)

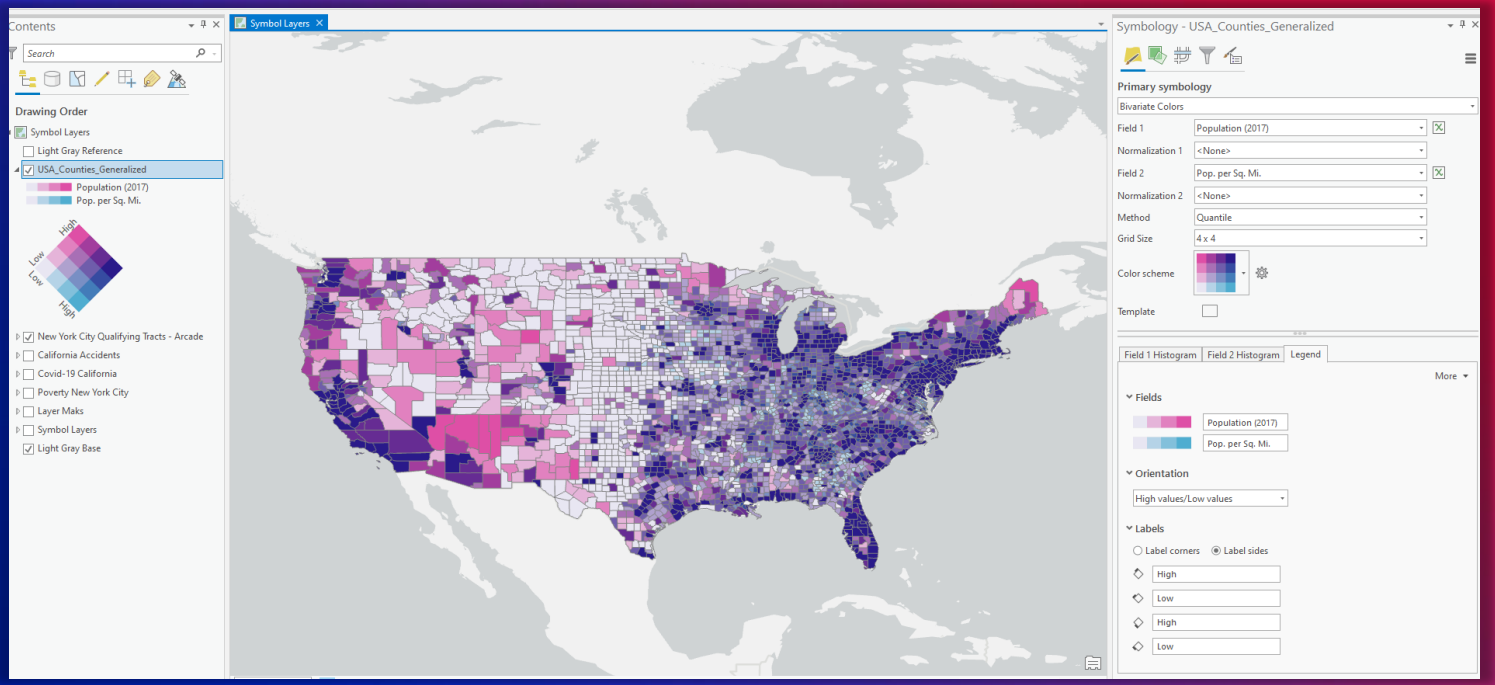


Poverty Tracts - Arcade

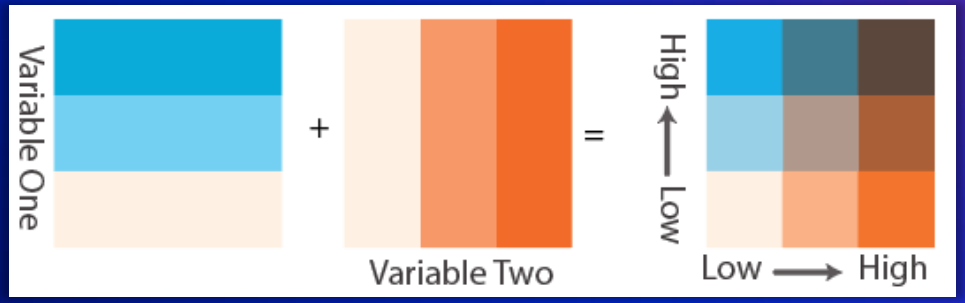
Symbology ArcGIS Pro

Bivariate colors

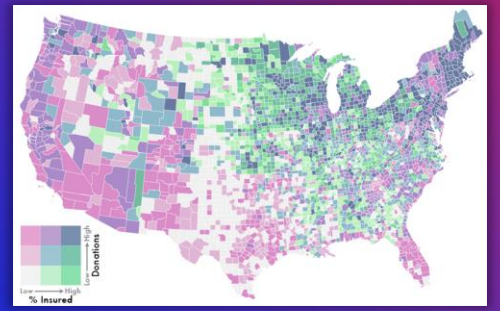
- Show quantitative relationship between two variables
- Customize your own color schema
- Classify variables and assign colors to each



Poverty Tracts - Arcade



Poverty Tracts - Arcade

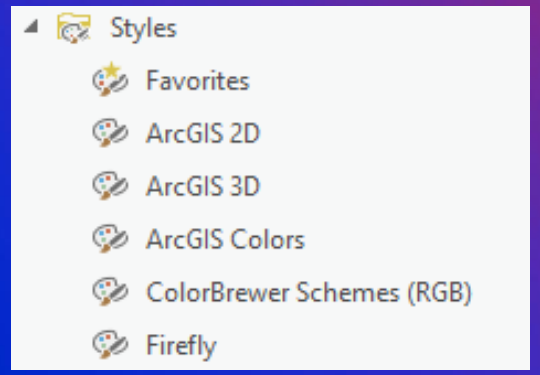


Poverty Tracts - Arcade

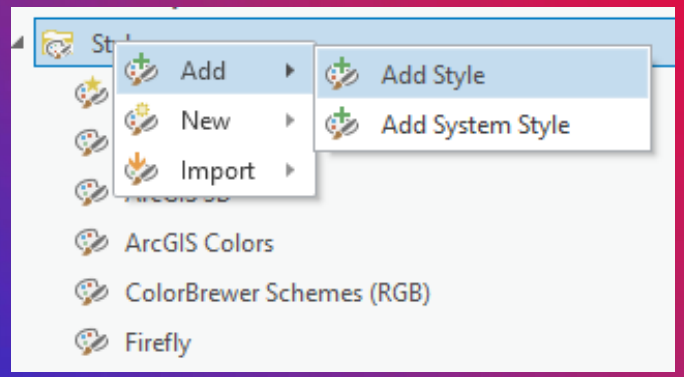
Symbology ArcGIS Pro

Styles

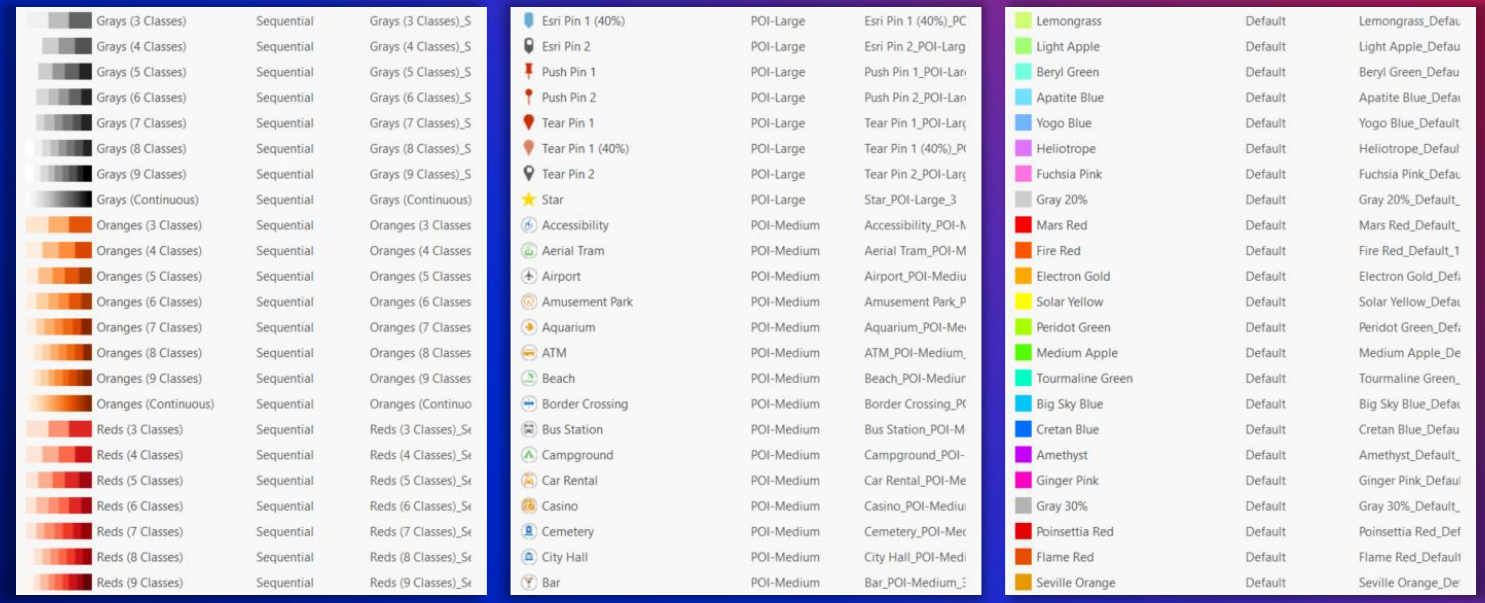
- Styles are containers that store:
  - Symbols
  - Colors
  - Color schemes
  - Label
  - Placements
  - Layouts
- Promote consistency and standardization across maps, scenes, and layouts
- Style types:
  - ArcGIS Pro style
  - Desktop style
  - Project style
  - Favorites style
  - System style
  - Custom style
  - Web style
  - Mobile style



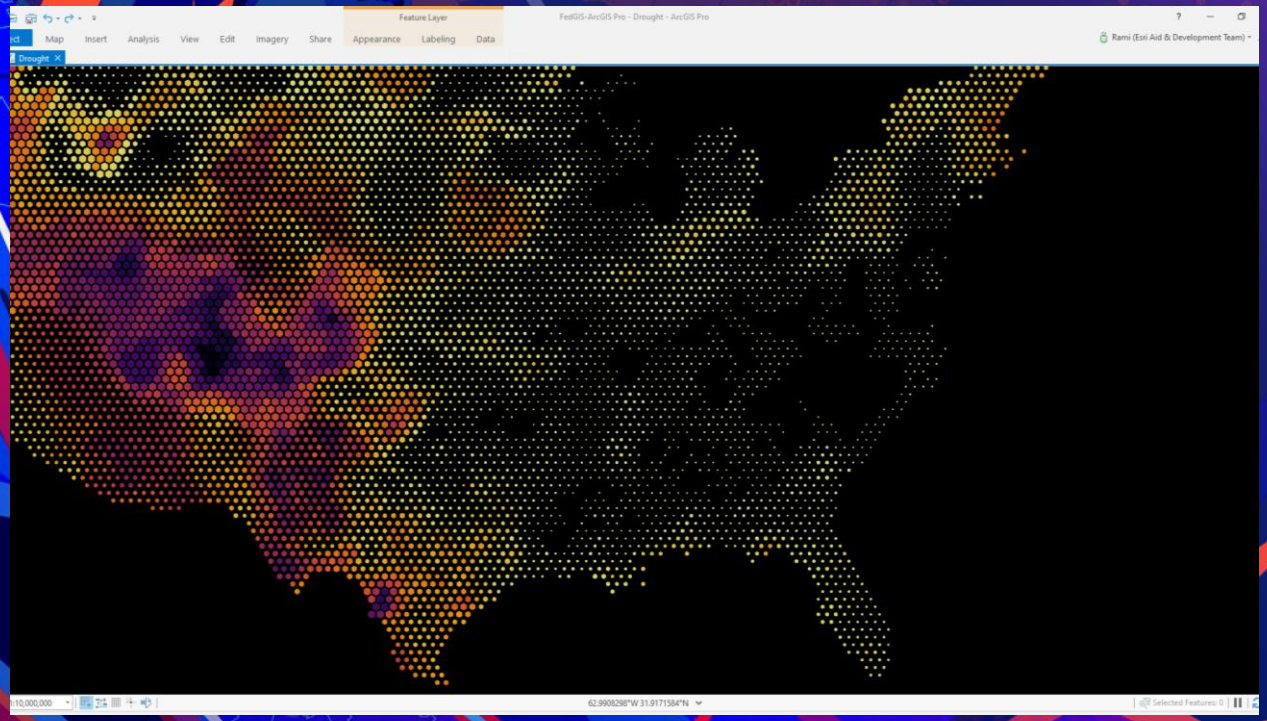
Styles directory



Adding new style



ArcGIS Pro Sryles

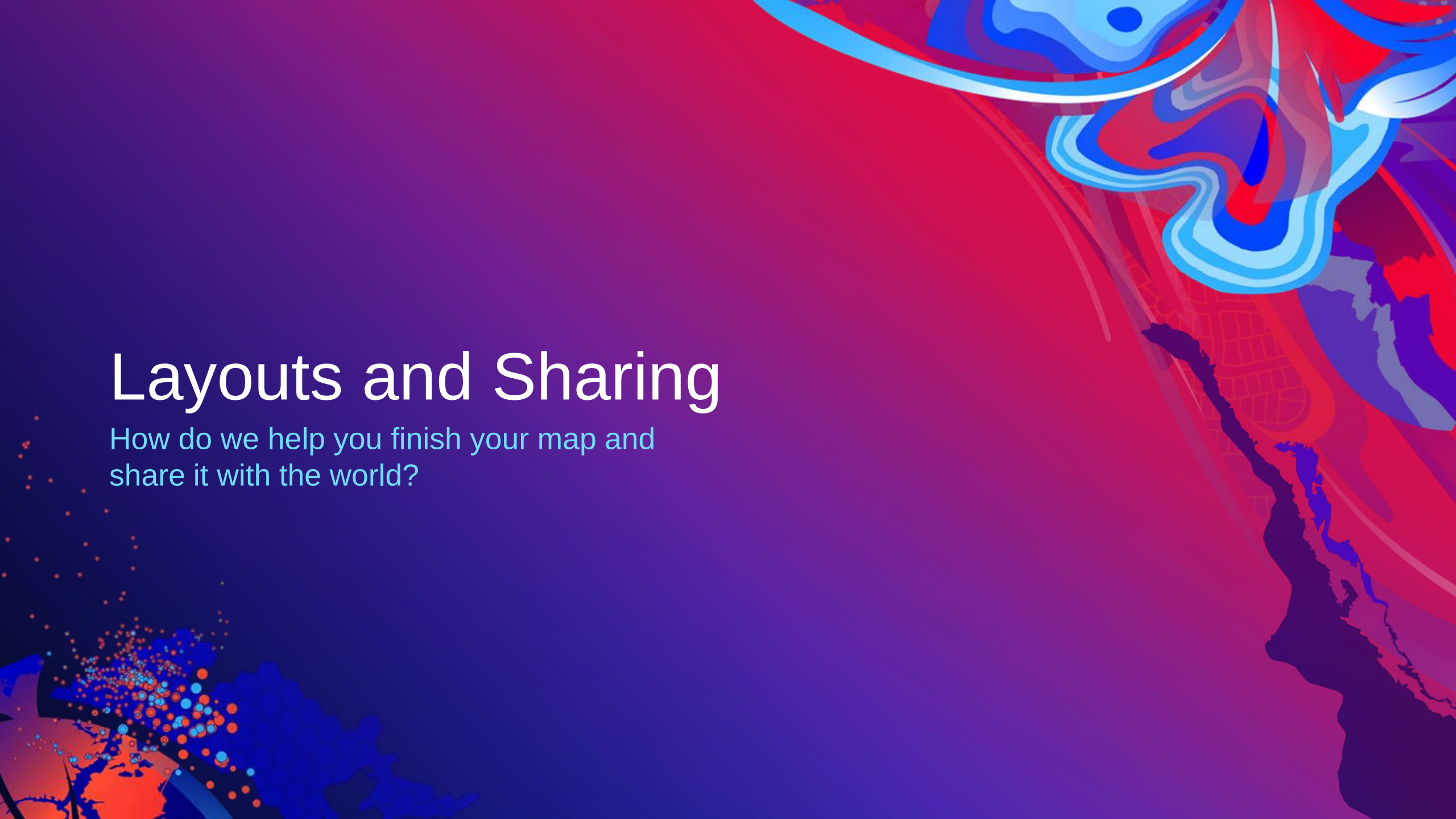


Demo

Symbology

Layouts and Sharing

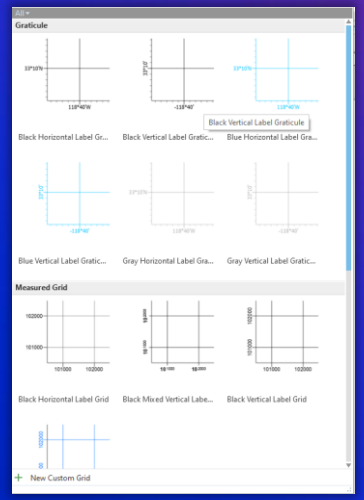
How do we help you finish your map and share it with the world?



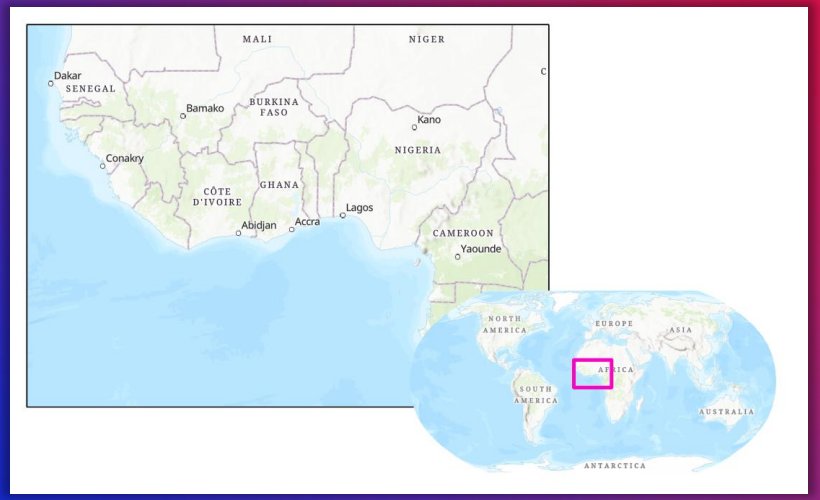
Layouts ArcGIS Pro

Elements

- Select from a variety of preset grids
- Customize and extend your Legend
- Customize legend style, layout, background, etc..
- Modify North Arrow Symbol
- Define custom extent indicators
- Produce dynamic infographics

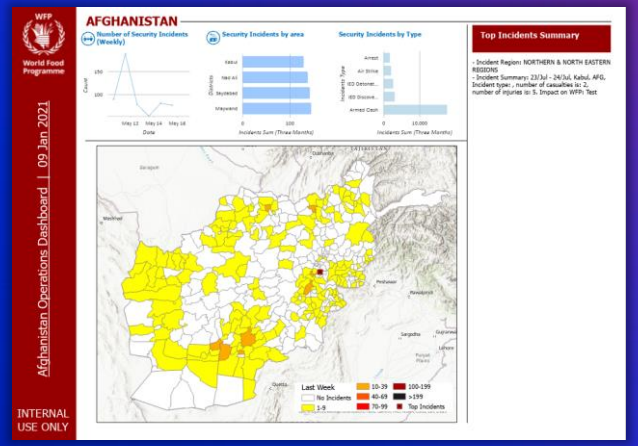


Grids and Graticules

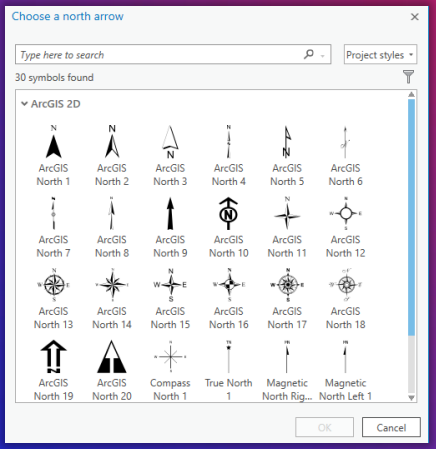


Extent Indicators and Inset Maps

Legends



Dynamic Layouts

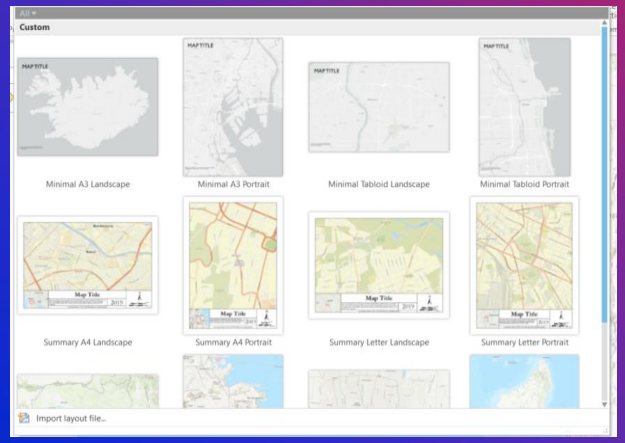


North Arrows

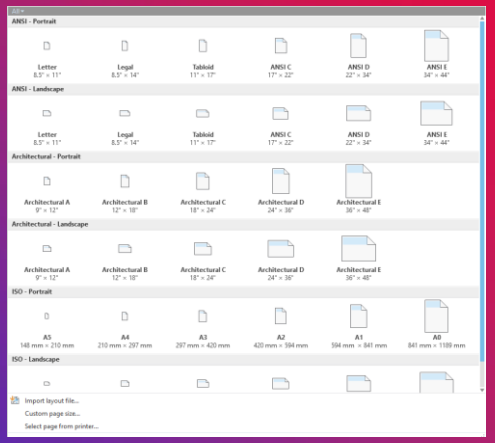
Layouts ArcGIS Pro

Layout Templates and Grids

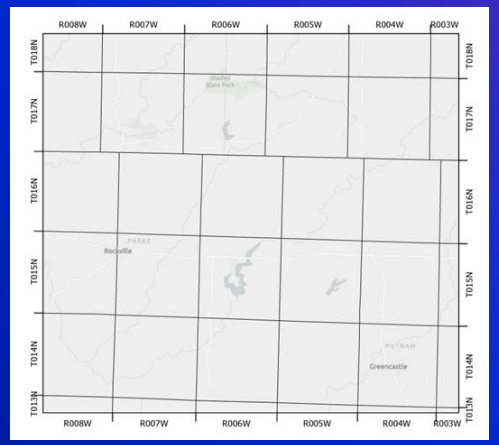
- Utilize existing layout templates or import your own
- Choose between a variety of architectural document sizes
- Custom grids based on a polygon or line feature
- Modify custom grid properties:
  - Name
  - Visible
  - Source
  - Neatline
  - Define map grid edges
  - Preview edges and corners
- Export layouts files and share them



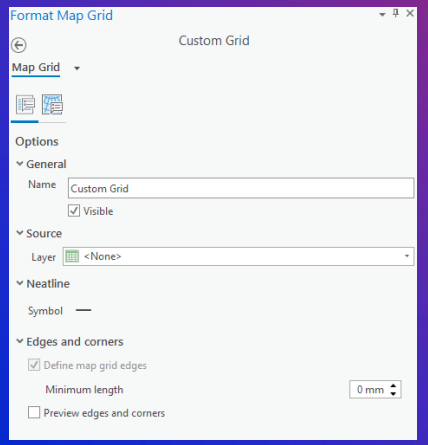
Layout Templates



Layout Page Sizes



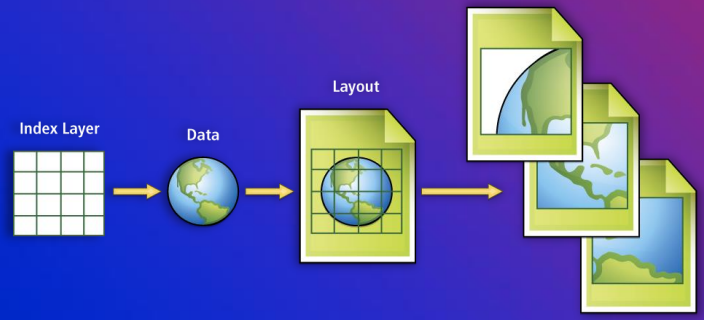
Custom Grids



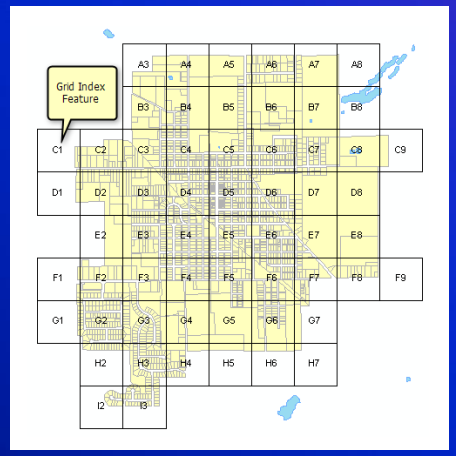
Layouts ArcGIS Pro

Map Series

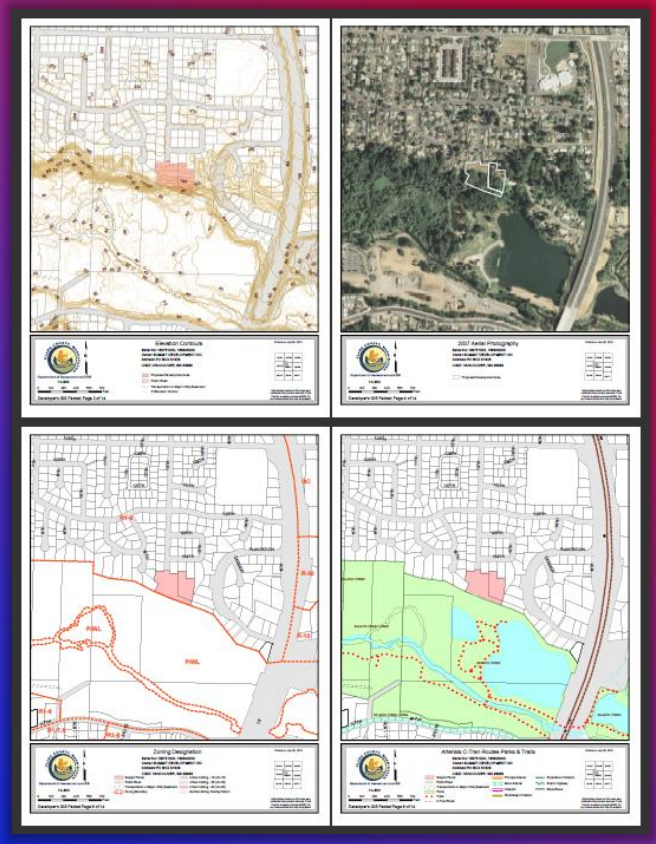
- Collection of map pages
  - In addition to pages like:
    - Titles, Table of Contents, index pages, etc.
- Referenced map Books
  - Series of pages that iterate across a geographic area
  - Reference grid based, strip maps, or feature based
  - Layout Map Series or Python Map Automation



Map Series Workflow



Collection Map Books

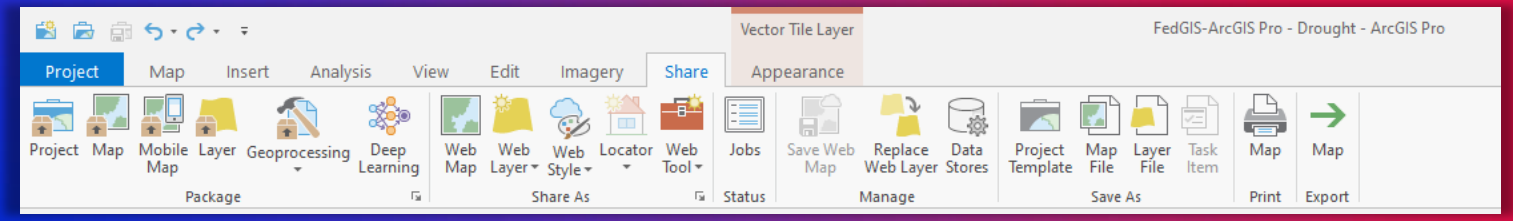


Thematic Map Series

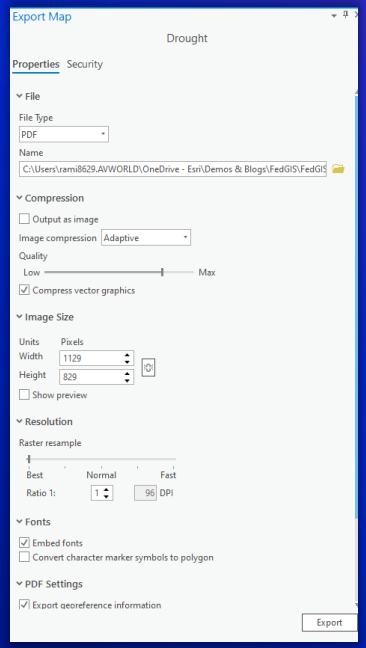
Sharing Layouts ArcGIS Pro

Exporting Layouts

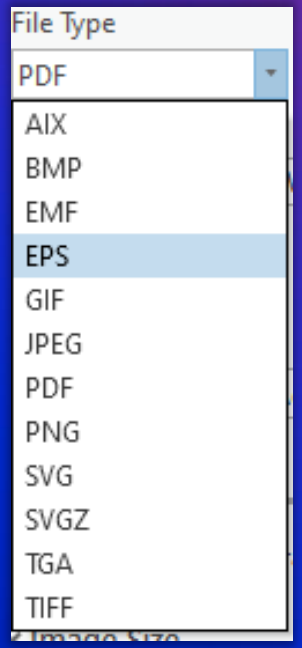
- Export your layout to a variety of file formats
- Define file quality, resolution, security, colors and much more..
- Automate the export process by utilizing built in Python Notebooks



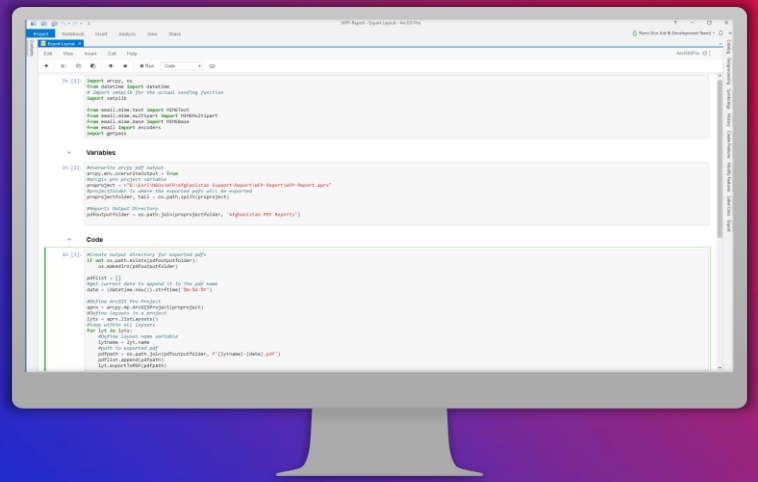
Sharing Toolbar



Export Map



Map Export Formats

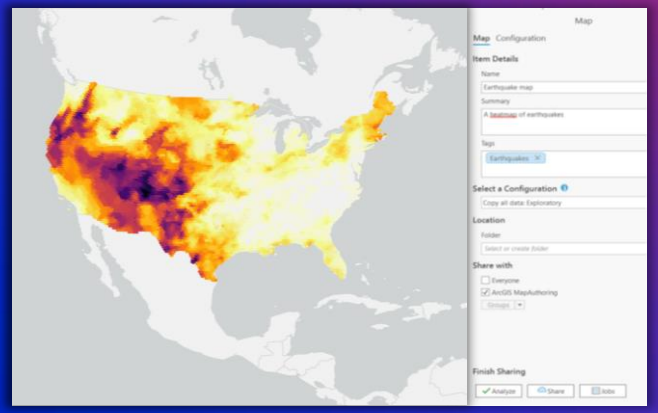


Automate Map Production

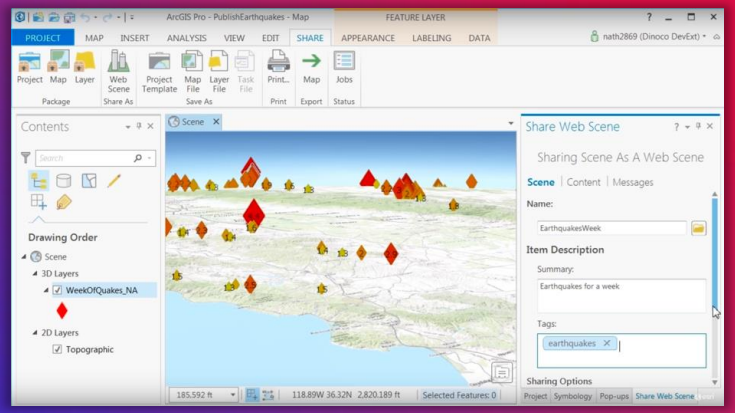
Sharing Layouts Layers ArcGIS Pro

Sharing to the Web

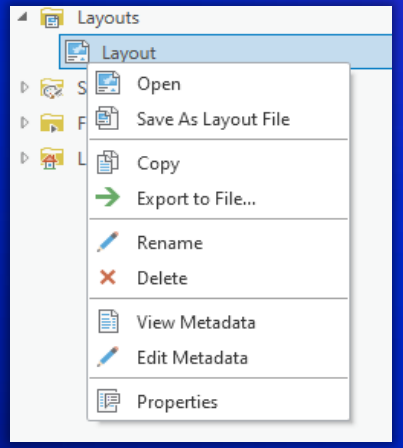
- Author and share web maps to your active portal
- Author and share web scenes to your active portal
- Export and import layouts to your project (.pagx) files.



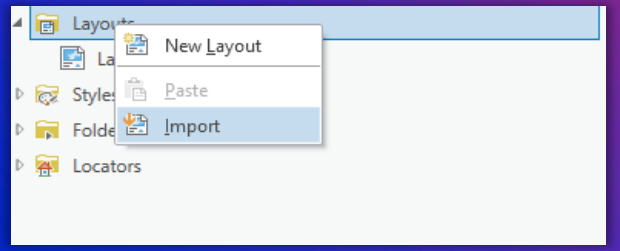
Publishing Web Map



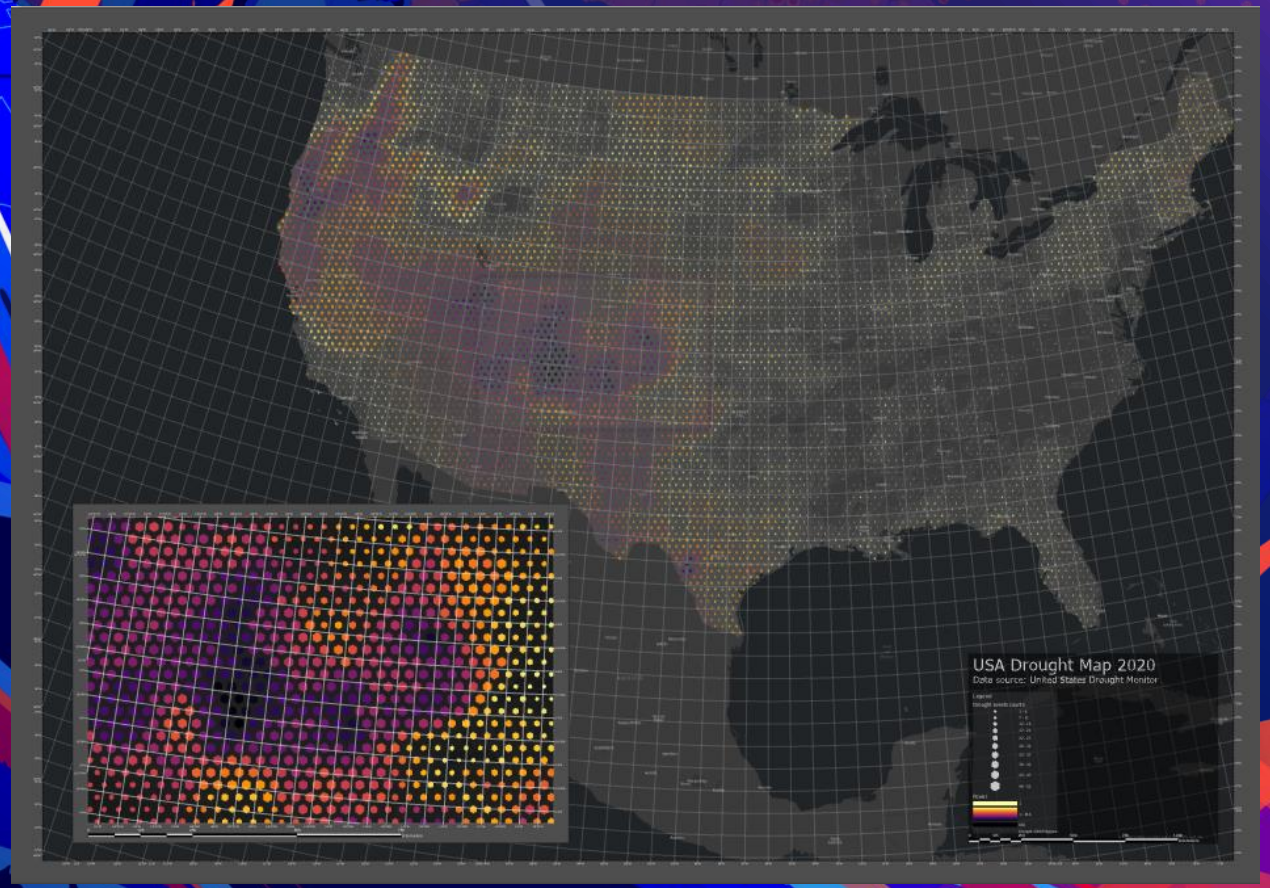
Publishing Web Scene



Export Layout



Import Layout



Demo

Layouts

Copyright © 2021 Esri. All rights reserved.