ArcGIS Pro: Mapping & Visualization

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Mapping an Visualization Vision
In ArcGIS Pro

• Improve drawing performance and quality

• Provide an intuitive and efficient map authoring experience in 2D and 3D
  - Creating 2D maps, 3D maps, and layouts
  - Layer symbology including symbol selection and editing
  - Layer properties
  - Labeling

• Support existing maps you have today and extend them with new capabilities
  • e.g. procedural modeling, KML
Mapping Overview
What we built

- Unified 2D / 3D mapping experience
- One symbol model integrating 2D, 3D, and representation symbols
- Decoupling maps and layouts
  - Multiple layouts
- Modern graphics support
  - Anti-aliasing
  - True transparency support
  - Improved drawing performance and application responsiveness
    - Multi-threaded drawing
High Level Mapping UX Design Goals

• Emphasize your work, not the UI:
  • Layer symbology and labeling
    - Provide better support for iterative workflows (e.g. map design)

• Layer properties
  - Provide ability to make changes across many layers

• Provide quick access to commonly changed items but allow deeper changes

• Erase differences between 2D and 3D where appropriate
2D Maps and 3D Maps

• 2D Maps and 3D maps are similar…
  - Have layers, coordinate system, bookmarks…
• …but they usually have different goals
  - Different symbology, including different classification fields (eg: Utility Poles)

• Some 3D layers aren’t useful in 2D
  - Elevation surfaces, Multipatches, Extruded features etc…
Solution: 2 types of maps

- Maps (2D) and Scenes (3D)
  - .MXDs → Maps
  - .SXDs / .3DDs → Scenes in Local or Global view
- You can create new Maps and Scenes
  - Then add in data, set coordinate systems, etc.
- You can convert a Map into a new Scene
  - And vice versa
- You can also:
  - Copy layers between them
  - Re-use Bookmarks between them
  - Link them together for interactive navigation
Types of 3D Worlds

**ArcGlobe**

‘Global’ context

- Global Coordinate System (WGS84)
- Curvature of the earth
- Large Data & Services
- Multiple surfaces acting as one

**ArcScene**

‘Local’ context

- Projected Coordinate Systems
- Area-of-interest
- Local data only
- One surface per layer

ArcGIS Pro: What's New in Mapping and Visualization
## Terminology changes

<table>
<thead>
<tr>
<th>ArcMap name</th>
<th>ArcGIS Pro name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data frame</td>
<td>Map</td>
</tr>
<tr>
<td>Globe</td>
<td>Scene: Global View</td>
</tr>
<tr>
<td>Scene</td>
<td>Scene: Local View</td>
</tr>
<tr>
<td>Color ramp</td>
<td>Color scheme</td>
</tr>
<tr>
<td>Marker symbol</td>
<td>Point symbol</td>
</tr>
<tr>
<td>Fill symbol</td>
<td>Polygon symbol</td>
</tr>
<tr>
<td>Symbol layer</td>
<td>Symbol layer of type marker, stroke, or fill</td>
</tr>
</tbody>
</table>

example: Polygon symbol made up of:
- Black stroke symbol layer (outline)
- Green fill symbol layer (interior)
Layout Enhancements

- Multiple layouts
- 3D Scenes in layout
- Layout contents
- Map decoupled from the layout
- Removed printer dependencies
- Inline text editing
- Map Series (Data Driven Pages)
Export Improvements

- Support for transparency in PDF
- Anti-aliasing and improved graphics
- Faster
- Smaller file sizes
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Map Automation
Provided by arcpy.mp module

- Script redundant mapping workflows
- Create map books
- Update projects, maps and layers (i.e. data sources, symbology)
- Automate the sharing of maps via export or publishing

- Migrate arcpy.mapping scripts to arcpy.mp - what changes?
  - Python 3.4
  - Projects (.aprx)
  - Layer file changes
  - Multiple layouts
Demonstrations
ArcGIS Pro releases

• 1.0 – January, 2015
• 1.1 – July, 2015
• 1.2 – March, 2016
• 1.3 – July, 2016
• 1.4 – January, 2017
• 2.0 – June, 2017
  - Annotation
  - Measured Grids
  - Custom Coordinate Systems
  - Import SVG for Symbology

• See “Road Ahead” sessions for more information on 2.0 and upcoming releases
Related Presentations

• ArcGIS Pro: An Introduction
  - Wednesday 3:15pm - 4:30pm Ballroom 6B
  - Thursday 8:30am – 9:45am Ballroom 6A

• ArcGIS Pro: Analysis and Geoprocessing
  - Tuesday 3:15pm – 4:30pm Room 8
  - Thursday 8:30am – 9:45am Room 8

• Desktop Mapping: Advanced Map Labeling using Maplex
  - Tuesday 3:15pm – 4:30pm Room 3
  - Thursday 3:15pm – 4:30pm Room 5A

• ArcGIS Pro Panel Discussion
  - Thursday 1:30pm – 2:45pm Ballroom 20D

• ArcGIS Pro Editing: An Introduction
  - Tuesday 10:15am – 11:30am Ballroom 6A
  - Wednesday 10:15am – 11:30am Hilton – Sapphire Ballroom E/F

• ArcGIS Pro: Tips and Tricks
  - Tuesday 1:30pm – 2:45pm Ballroom 6A
  - Wednesday 1:30pm – 2:45pm Hilton – Sapphire Ballroom I/J

• ArcGIS Pro: Migrating from ArcMap
  - Wednesday 3:15pm – 4:30pm Room 10
  - Thursday 10:15am – 11:30am Hilton – Sapphire Ballroom I/J

Visit us at the Mapping and Visualization Area in the Esri Expo

ArcGIS Pro: What’s New in Mapping and Visualization
Questions?

Please fill out a survey