



ArcGIS Runtime: Building Adaptive Maps

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DEVELOPER SUMMIT

Agenda

- **Background: dark theme & high contrast modes**
- **The need for theme support in maps**
- **Other patterns in ArcGIS**
- **The Theme-Aware Map pattern**
- **Demos: create & use theme-aware maps & apps**
- **Resources, feedback, conclusion**

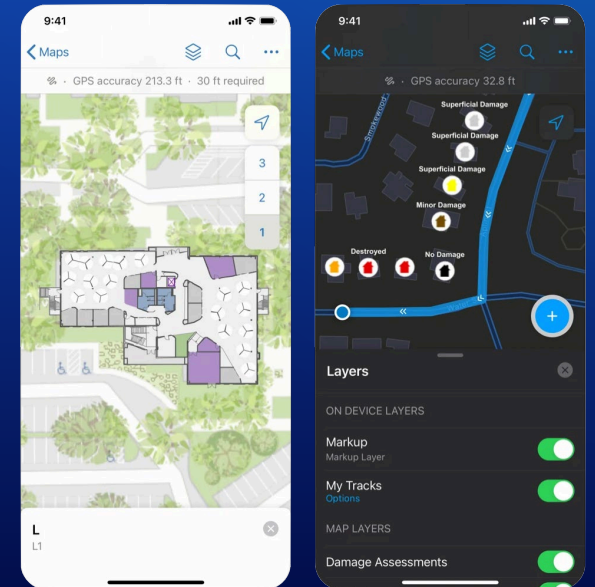
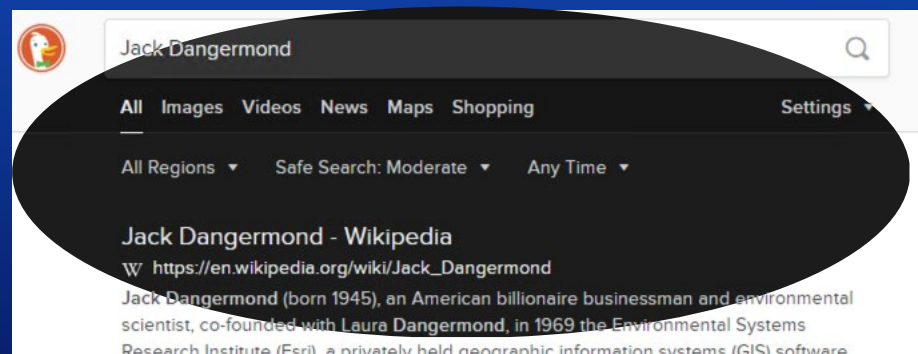
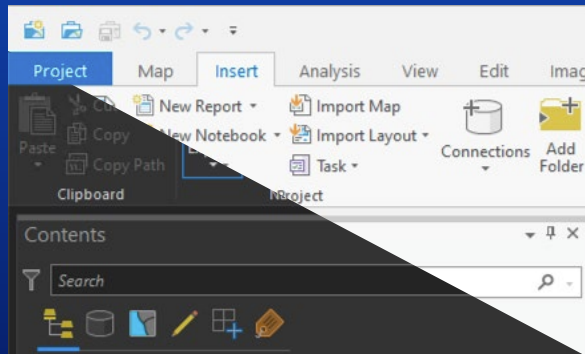


Background info

Why do I need theme-aware maps?

Background: Dark Mode

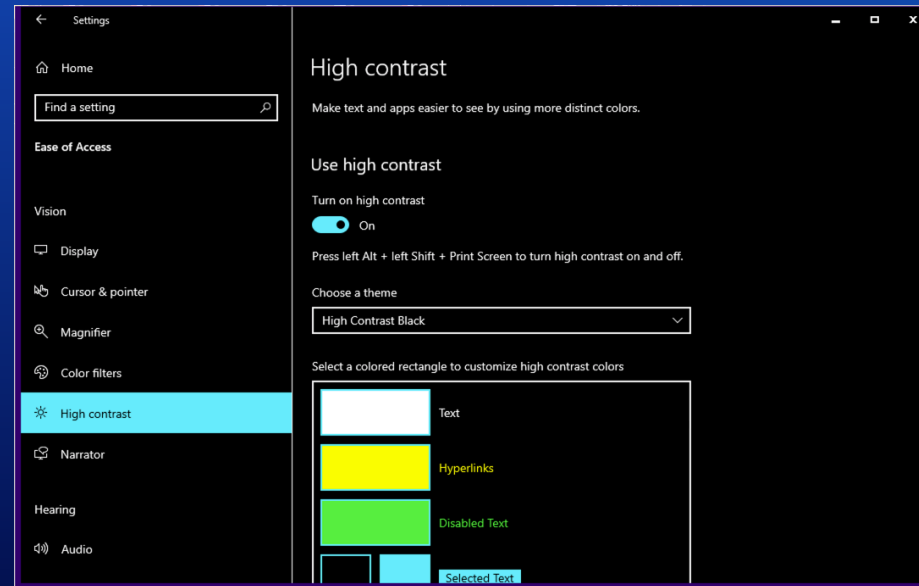
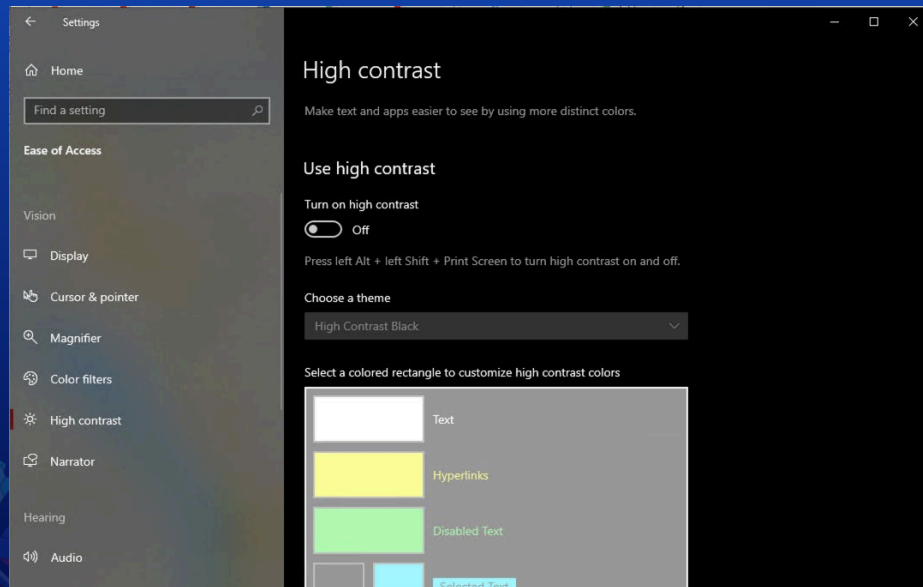
- System-level support
- iOS, Android, macOS, Windows, Linux DEs
- Supported on web through Edge, Firefox, Safari, Chrome



Theme-aware maps

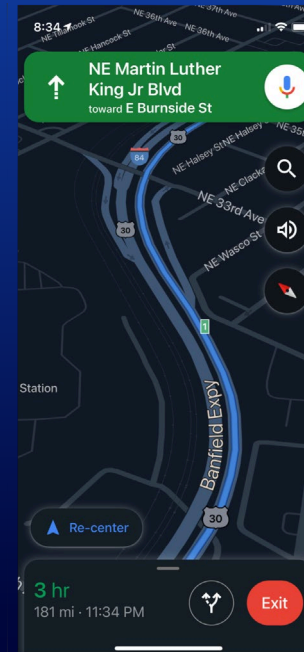
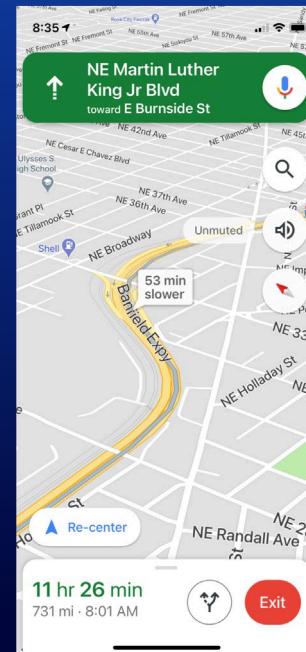
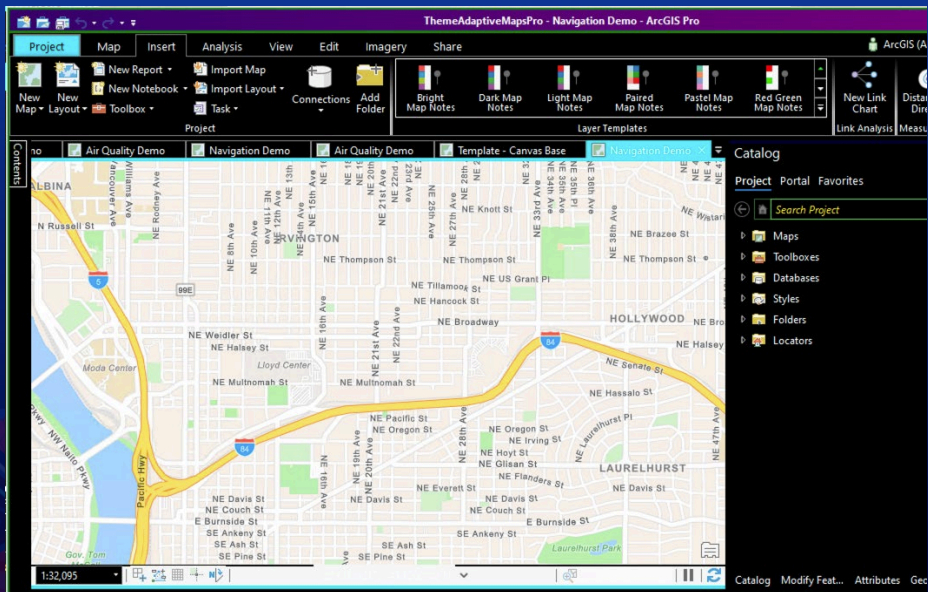
Background: High Contrast

- Long-time accessibility feature on Windows
- Limited web support (improvements coming soon)



The need for theme-aware maps & map views

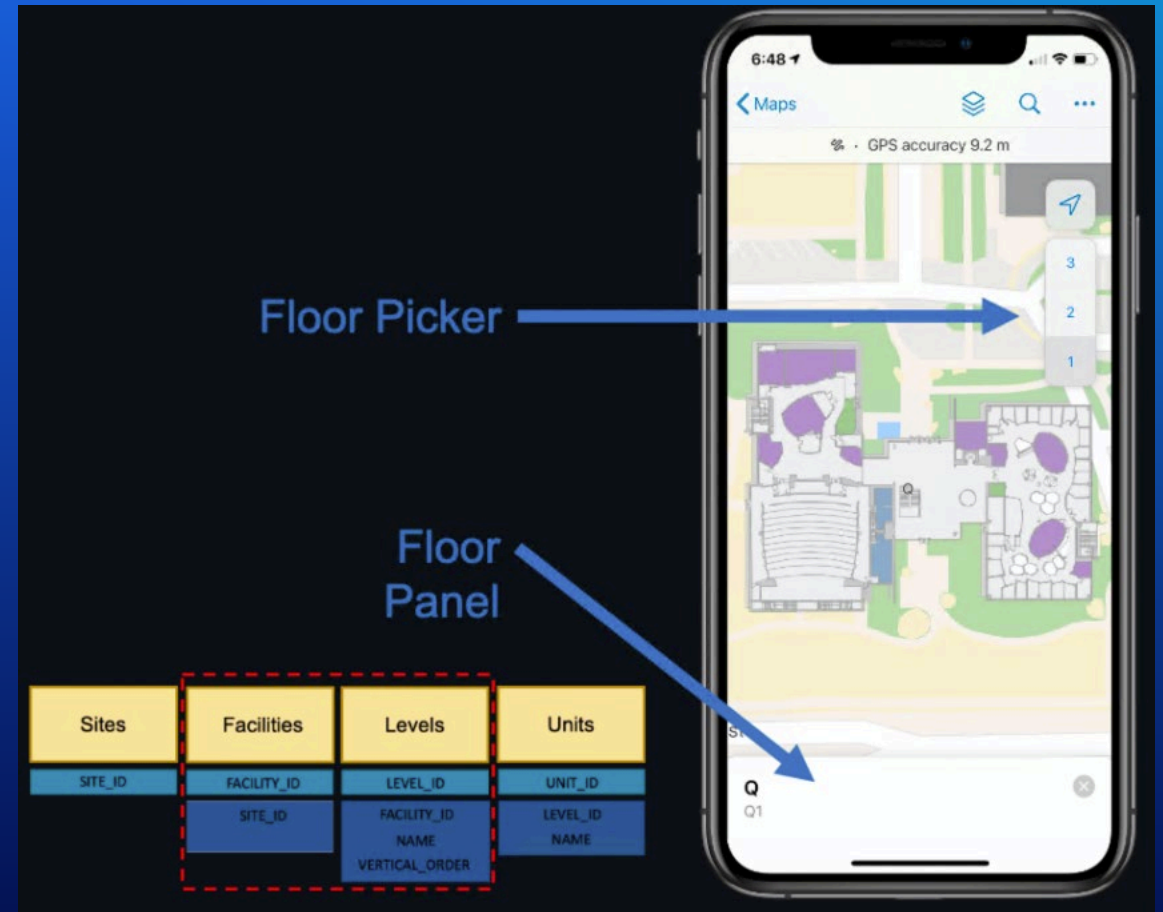
- System doesn't render map, so system can't re-skin map automatically
- Maps often fill most of the screen; if the map clashes, the app clashes
- Consumer maps are theme aware
- High Contrast is an important accessibility feature



Theme-aware maps

Patterns in ArcGIS

- ArcGIS web maps are feature-rich and flexible already
- Consistent use of existing features can avoid the need for a one-off feature
- Example: floor pickers
 - Uses feature layer definition expressions with defined schema



Theme-aware maps

The background features a vibrant, abstract composition of overlapping shapes and patterns. On the left side, there are stylized, colorful elements resembling a globe or map, with various shades of blue, red, and yellow. These elements are layered and partially obscured by other shapes, creating a sense of depth and complexity. The overall aesthetic is modern and digital, with a focus on geometric forms and a rich color palette. The text is centered in the upper half of the image, providing a clear focal point against the busy background.

Theme-aware maps

Introducing the theme-aware map pattern

Disclaimers

- **This is a proof-of-concept pattern; not an officially-supported product**
- **Demo map content is not for production use**
- **There may be performance issues with complex maps**

- **This is a proposed pattern; your feedback is wanted!**

Theme-aware map pattern

Map:

- Use group layers to contain each theme
- Group layers are named by theme
- Default set of themes is “Light”, “Dark”, and “High Contrast”
- By default, only one theme group layer is selected for display

Map View:

- The map viewer looks for top-level group layers starting with “Theme: ”
- The map viewer allows user choice of theme, or can match system theme

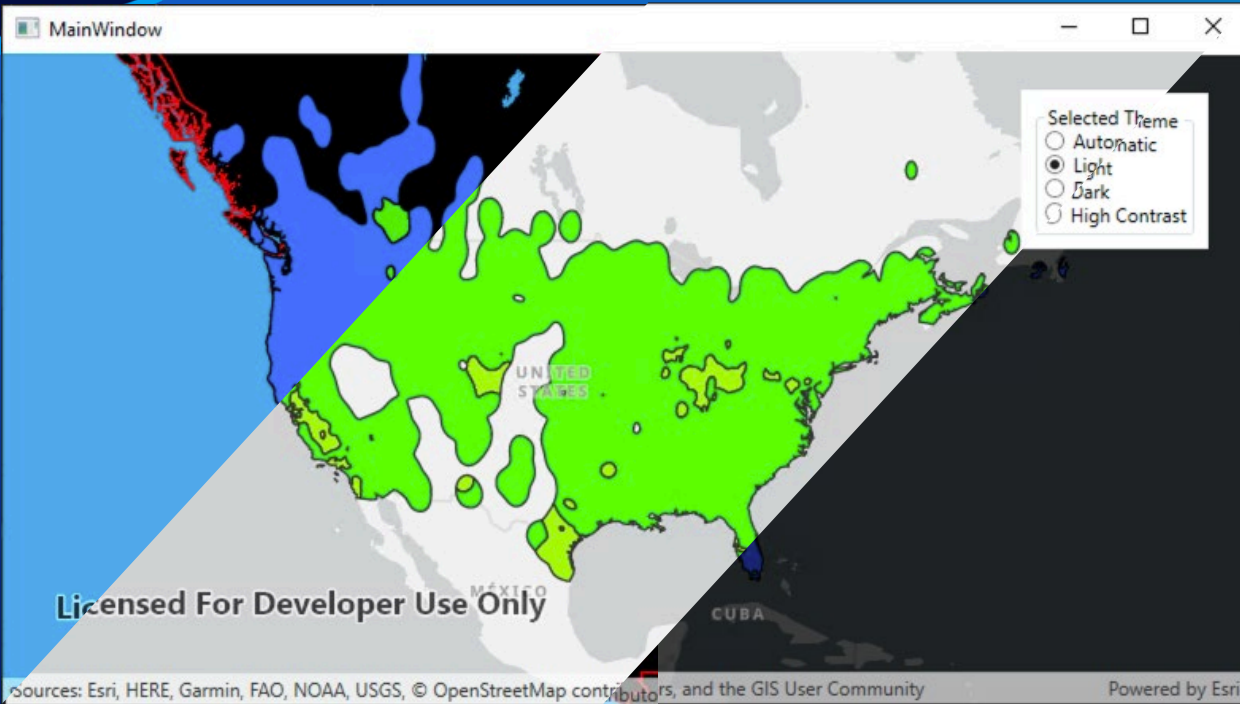
Theme-aware map pattern – pro/con

Pros:

- **Compatible with ArcGIS today**
- **Easy to author online, on desktop, or in code**

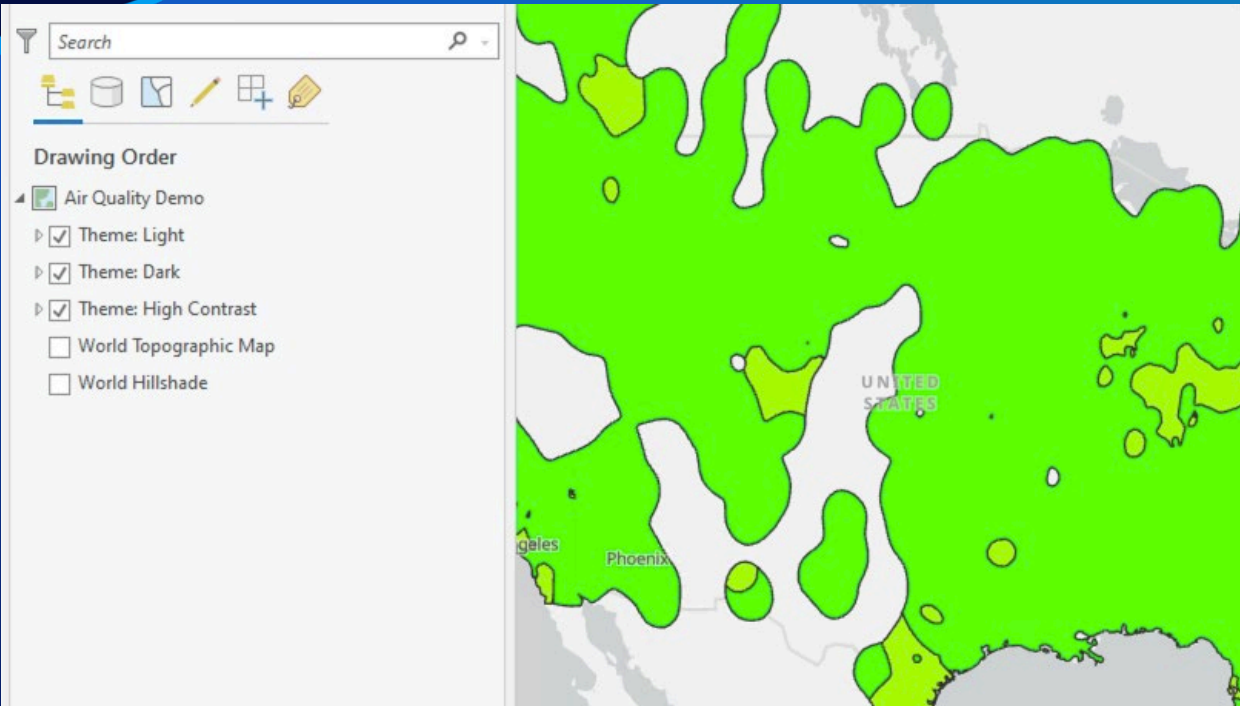
Cons:

- **May have performance implications**
- **Clunky in non-theme-aware applications**



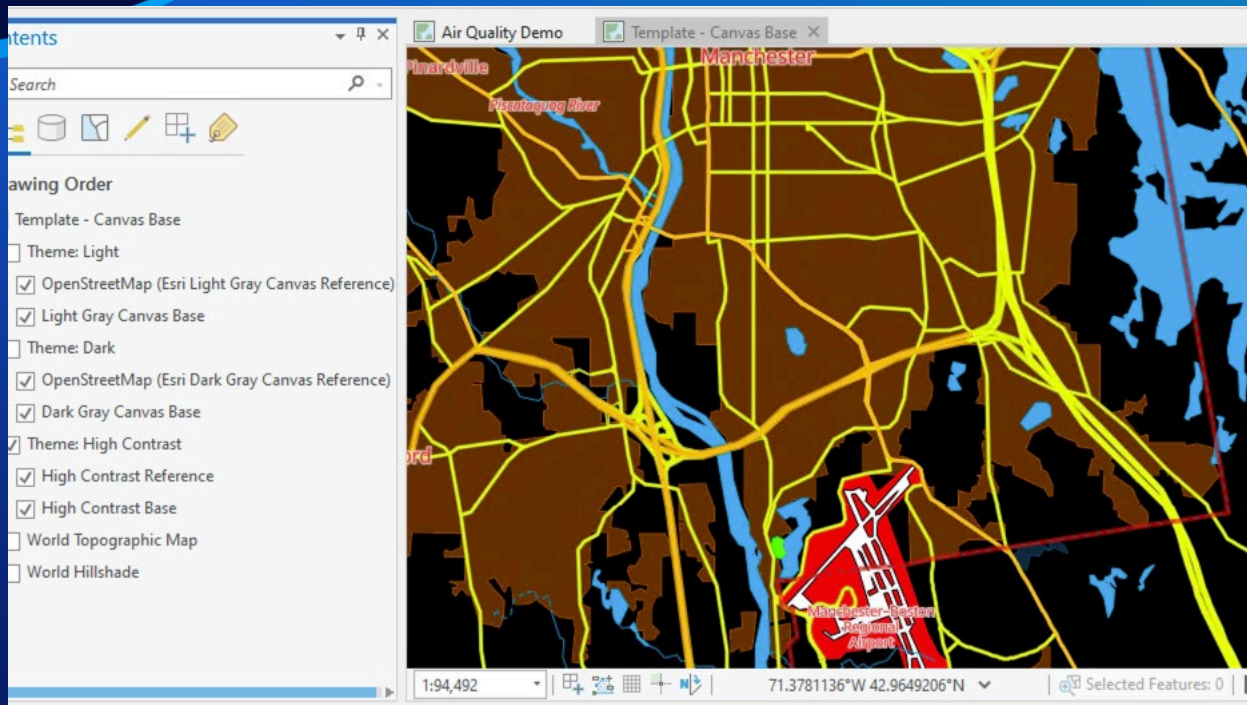
Use a Theme-Aware Map

Demo



Create a Theme-Aware Map

Demo



Pre-built templates

Demo

Resources & Feedback

- Interested? Your feedback wanted!

- Survey: <https://arcg.is/0e4Sq1>

- Resources:

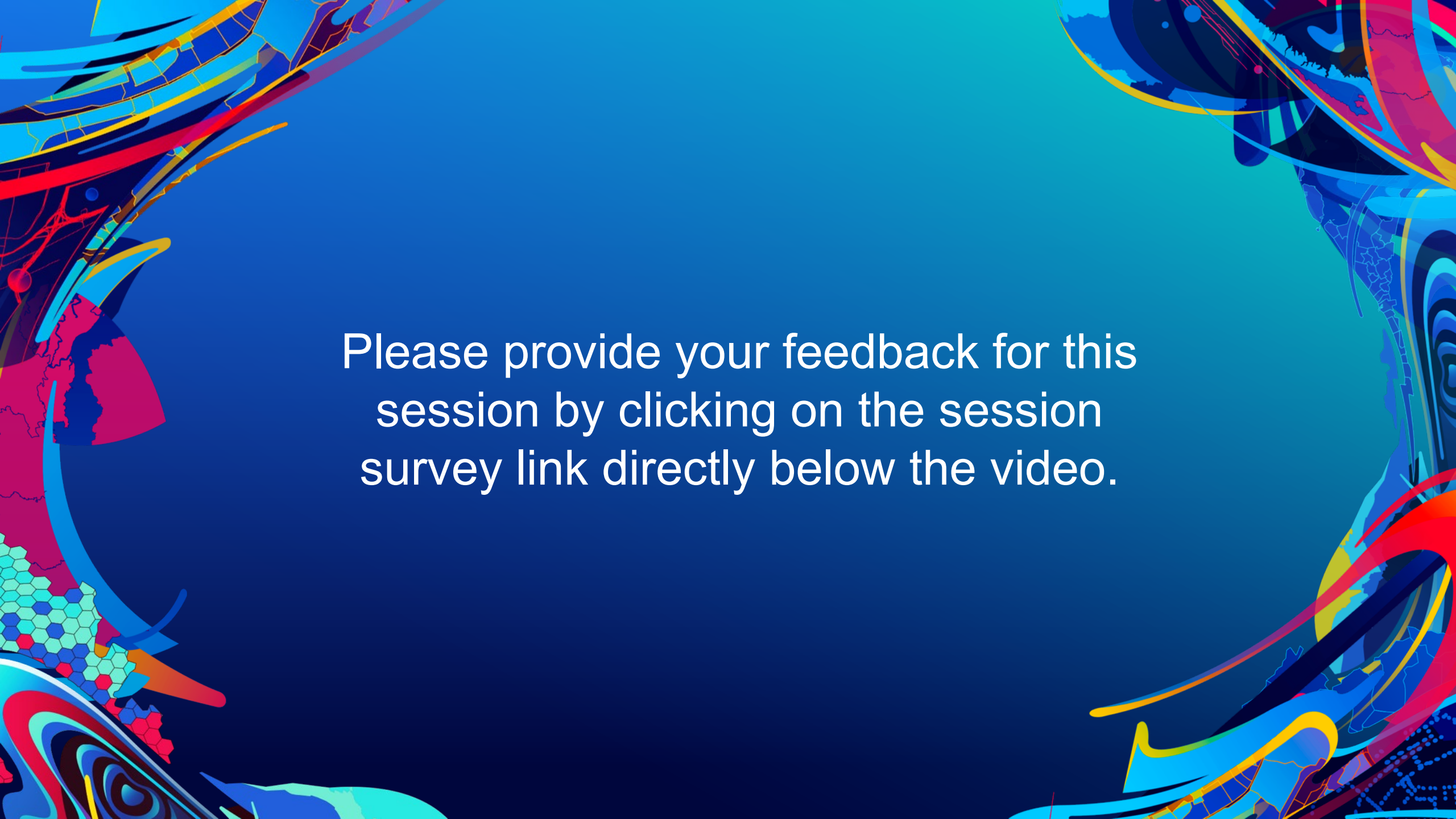
- Vector Tile Style Editor: <https://developers.arcgis.com/vector-tile-style-editor/>
- GitHub repo (prototype control, demo projects, links to ArcGIS Online resources): <https://github.com/esridevsummit/2021-12345-themed-maps>





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