Leveraging Vector Tile Layers in Web Apps

Rene Rubalcava
Vector Tiles
Do they work?
Vector Tiles
Do they work?
YES!
Questions?
Kidding
Quick Intro

What are Vector Tiles?
Similar to Raster Tiles
What are Vector Tiles?

- Tiles of vector graphics rather than tiles of images
What are Vector Tiles?

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- Smaller in size
What are Vector Tiles?

- Tiles of vector graphics rather than tiles of images
- Smaller in size
- Powered by GPU!
  - WebGL
1. Benefits to you and users

2. How to style (the good, the bad, the ugly)

3. Publish and consume
Benefits

• Indexed Vector Tiles
  - Over-zoom
  - Normal tiling supported
  - Publish from ArcGIS Pro
Benefits

- Esri provided Basemaps
  - Vector Basemaps Group

VT Basemap Explorer
https://esri-es.github.io/arcgis-vector-tiles/
Benefits

• ArcGIS API for JavaScript
  - Out-of-the-box
  - 3D
Benefits

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  - Localized Labels
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  - Custom Projections
Benefits

- **ArcGIS API for JavaScript**
  - Out-of-the-box
  - 3D
  - Localized Labels
  - Custom Projections
  - Printing
Benefits

• Do you need more than the basemaps?
Benefits

• Do you need more than the basemaps?
  - Custom styles?
Benefits

• Do you need more than the basemaps?
  - Custom styles?
  - Publish your own data?
Benefits - Summary

• Indexed Vector Tiles
• Provided basemaps
• What are your needs?
Custom Styling

• This is going to be fun!

Please don’t do this
Custom Styling

- Quick Prerequisite

Tiles → Style Files → Display
Custom Styling

• Step 1 – Copy a style in Online
Custom Styling

• Step 2 – Get creative!

3.X
vectorTileLayer.setStyle(styleJSON)

4.X
vectorTileLayer.loadStyle(styleJSON)
Custom Styling

• Step 2 – Get creative!
Custom Styling

• Step 3 – Experiment!
Disclaimer: I am not a cartographer. I write code. I make beautifully ugly maps.
Custom Styling - Summary

- Copy a style
- Edit the style
- Save the style back to Portal/Online
- Have fun!
Publish and Consume

• Got some data?
Publish and Consume

• Got some data?
• Want to publish some tiles?
Publish and Consume

• Got some data?
• Want to publish some tiles?
• Let’s publish some tiles!
Publish and Consume

• I have a little bit of data

0 of 192444 selected

But their hexbins

192,444 x 6 =

1,154,664 vertices!
Publish and Consume

• Publish

[Image showing the process of creating a vector tile package and sharing it, with parameters such as input map, output file, package summary, and tags.]
Publish and Consume

Consume

USHouseholdsHex

Overview Usage Settings

Edit Thumbnail

US Households
by Rene.Rubalcava
Last Modified: June 9, 2016

Tile Layer (hosted)

Add to Favorites

Open in Map Viewer
Open in Scene Viewer
View style
Share

Description

Triangle visualization of US Households

Details

0 ratings, 1 view
Source: Vector Tile Service
Created from:
USHouseholdsHex, Vector Tile Package
Created: June 9, 2016
Size: 7 MB
Publish and Consume

- **Consume++**
  - Publish source data
  - Don’t display it

https://odoe.github.io/esrijs4-vt-misc/vector-tile-query.html
Query hax

Query the source data, display the tiles.
Publish and Consume

• Consume+++
  - Filter the layer style
  - Style on the fly

https://gbochenek.github.io/vector-tile-demo-js/
More fun hax

You can apply filters to styles
Publish and Consume - Summary

• Publish tiles in Pro
• Consume tiles in Online/App
• Have even more fun!
Resources

• Editors
  - https://github.com/Esri/arcgis-vectortile-style-editor
  - https://maps.esri.com/jg/VectorBasemapStyleEditor/

• Demos
  - https://esri-es.github.io/arcgis-vector-tiles/
  - https://gbochenek.github.io/vector-tile-demo-js/
  - https://github.com/odoe/esrijs-vt-demos
Questions?

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