

Enabling High-Quality Printing in Web Applications

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These slides for download: <http://bit.ly/19eYbsn>

High Quality Printing on the Web

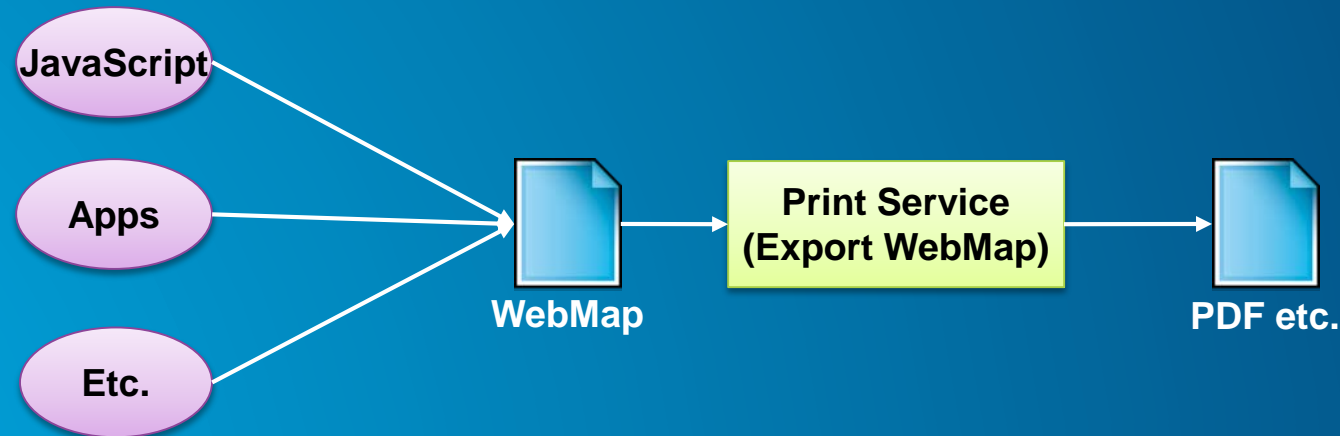
- **Primary Goals:**
 - Create a printable document (PDF preferably)
 - Have that document printed to 'exact' scale
 - Leverage ArcMap layouts
 - Support large format plots
 - Display ALL contents of my Web map
 - Services, graphics, feature layers, etc.
 - Be able to modify the map content during the process
 - High DPI
- We created a 3 tiered approach to meet these needs

High Quality Printing – 3 Tiered Approach

- *Simple printing*
 - Out of the box Geoprocessing Service with ArcGIS Server
 - Small format
 - Synchronous
 - Token based secure services
- *Custom configuration*
 - Ability to supply your own templates
 - Asynchronous if desired
 - Handle HTTP secure services
 - Large format
- *Advanced cases*
 - Supported via ArcPy.Mapping
 - Map/Layer addition, replacement, etc.

Printing Service Overview

- **Print services are powered by WebMaps**
 - Consistent format produced by all the ArcGIS APIs
 - JSON based spec for sharing services, graphics, symbols etc.
- **Note: The services in the WebMap must be accessible to the Print Service**
 - HTTP security is a special case

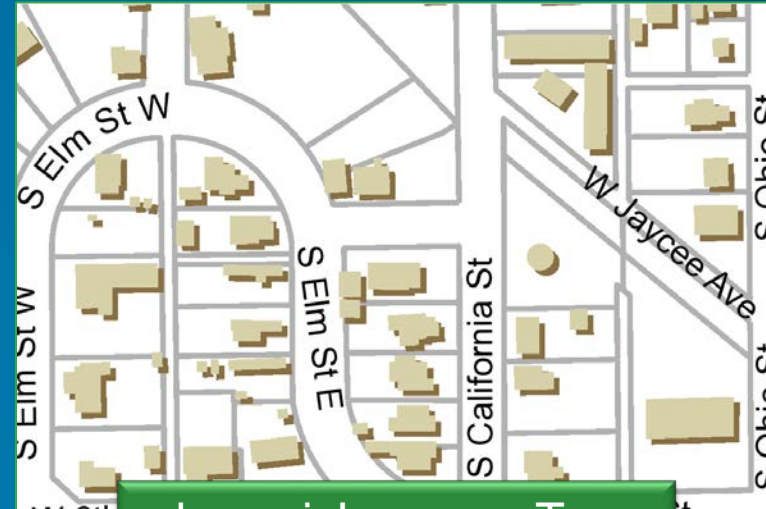


Printing Cached Services

- Tiles created using 96 DPI
- 10.1 added dynamic layer support for Map Services
 - Allows for printing at higher DPI than cached images
 - You must have Publisher or Admin privileges to update the service



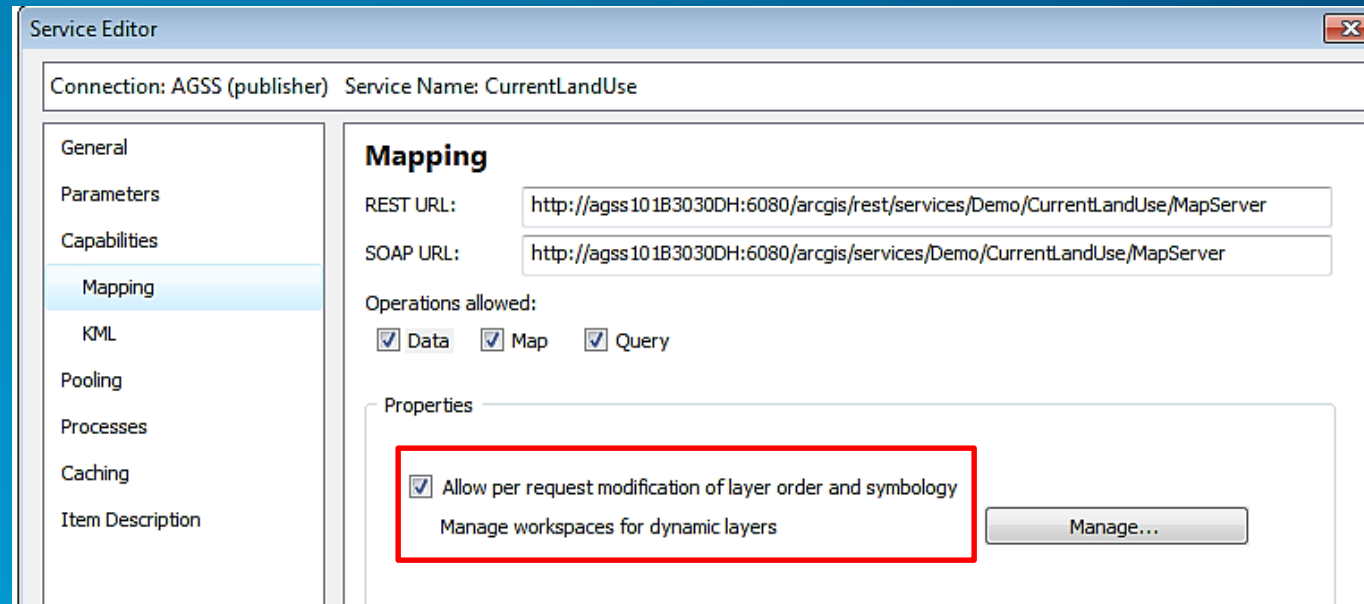
dynamicLayers = False
(600 DPI)



dynamicLayers = True
(600 DPI)

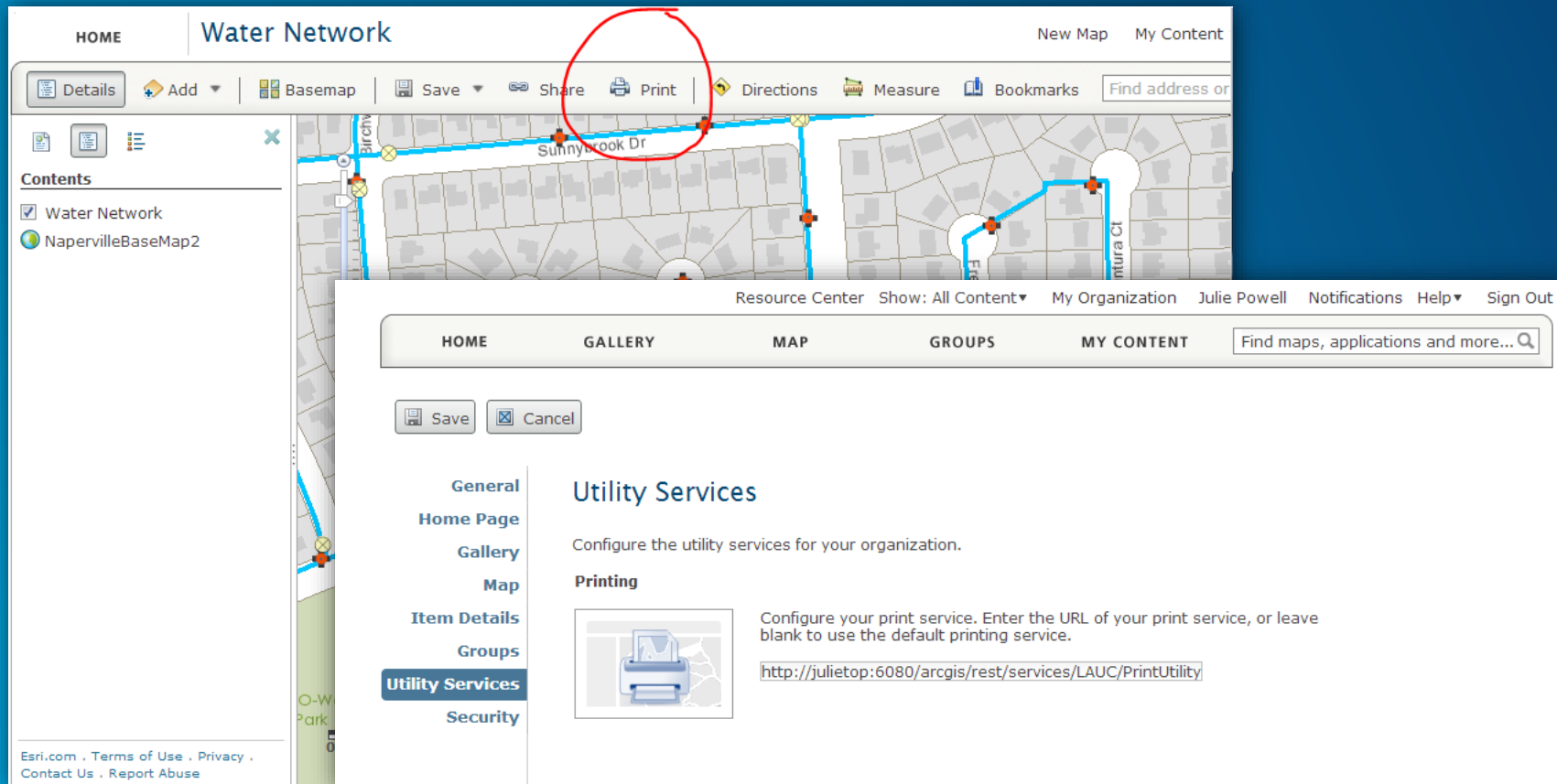
Enabling Dynamic Layers

- Option in properties of cached service



ArcGIS Online Organization & Portal

- Register your own print service
- Print on-premises services behind a firewall



Demo

Out of Box Print Service

ArcGIS

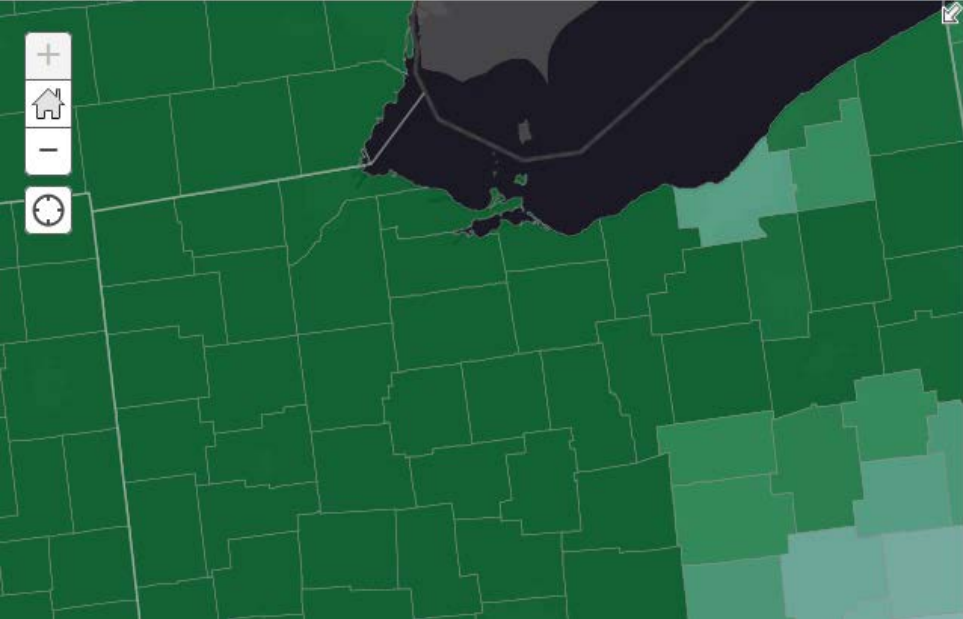
Cropland in Use

MODIFY MAP

Sign In

Details

Find address or place



ArcGIS REST Services Directory

Login | Get Token

Home > services > Utilities > PrintingTools (GPServer)

Help | API Reference

JSON | SOAP

Utilities/PrintingTools (GPServer)

Service Description: The PrintingTools service is used by web application developers to export the contents of a webmap to pdf, jpeg, png or other formats. This service is generally used in the context of providing applications with printing functionality.

Tasks:

- [Export Web Map Task](#)

Execution Type: esriExecutionTypeSynchronous

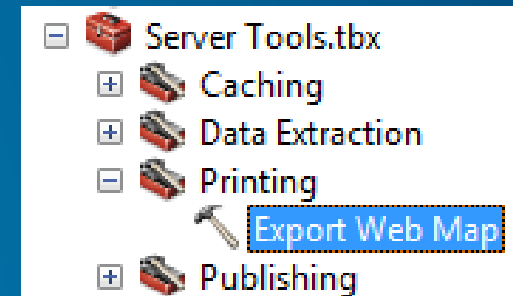
Result Map Server Name:

MaximumRecords: 1000

Child Resources: [Info](#)

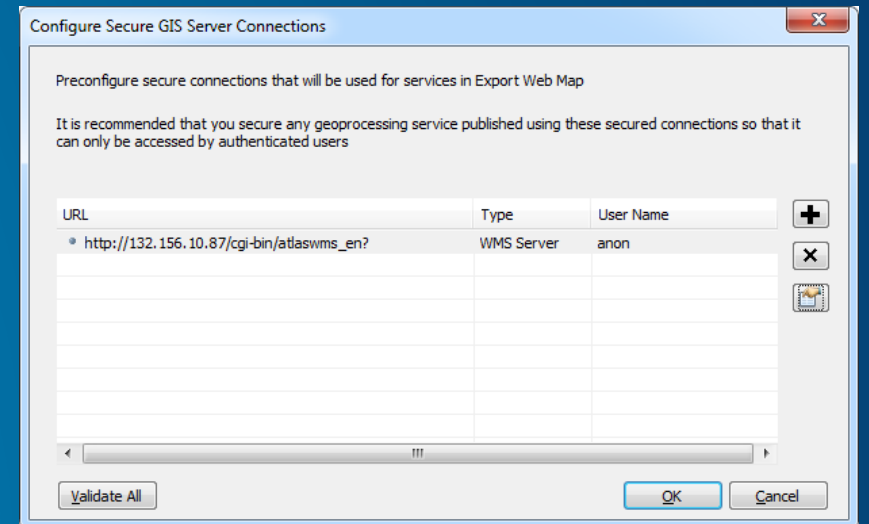
Custom Configuration

- **Publish the Export Web Map tool as your own service**
 - Use your own layout templates
 - Choose to make the service asynchronous if desired
 - This choice depends on the size of your prints and the length of time they'll take
 - Configure service security
 - Token security handled automatically
 - HTTP security must be configured



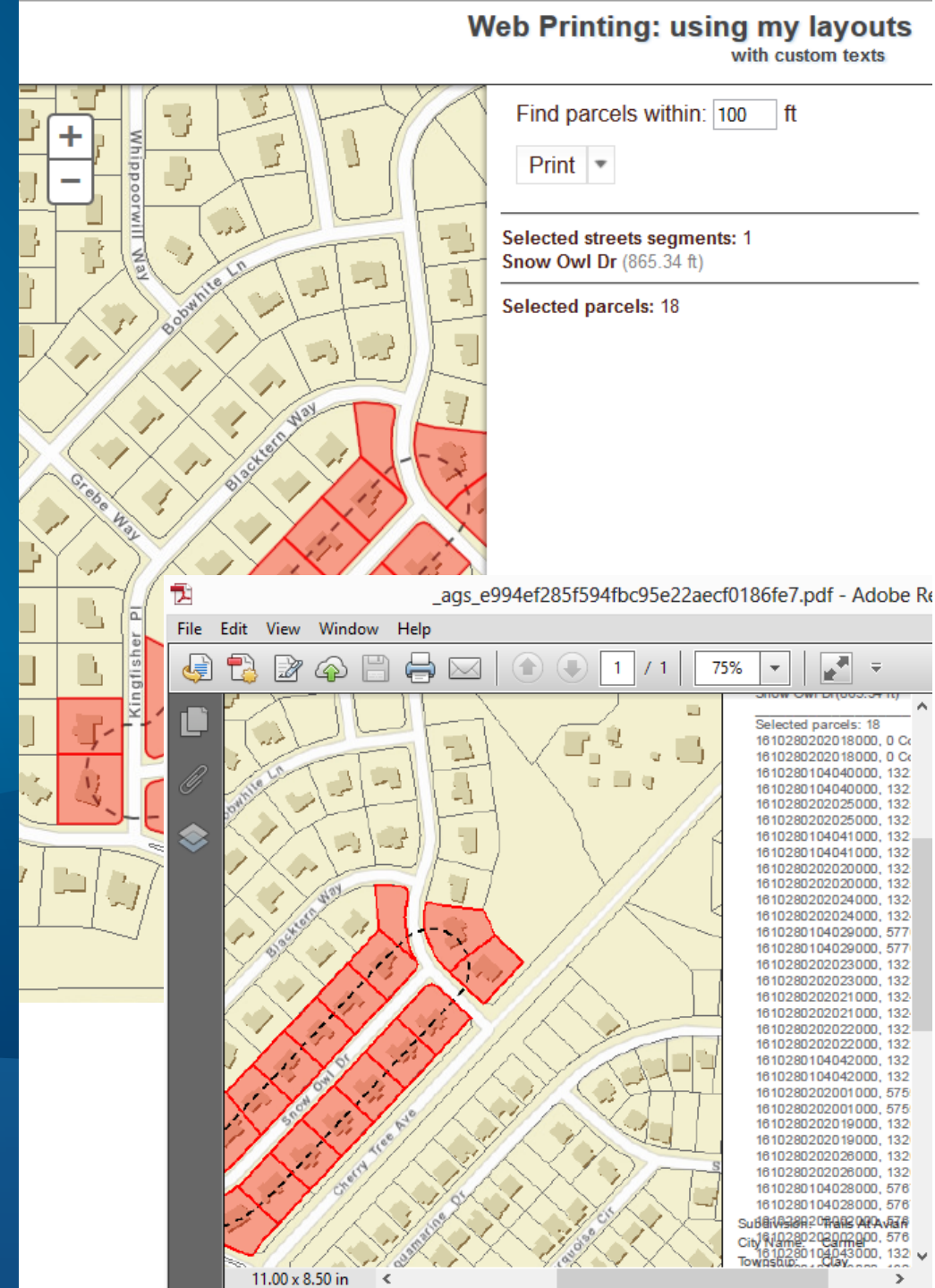
Configuring Secured Services

- HTTP security requires configuration
 - Add service connections for each secure service before publishing
 - “Edit” the tool to edit security configurations
- **Secure the print service itself if you configure security for services**



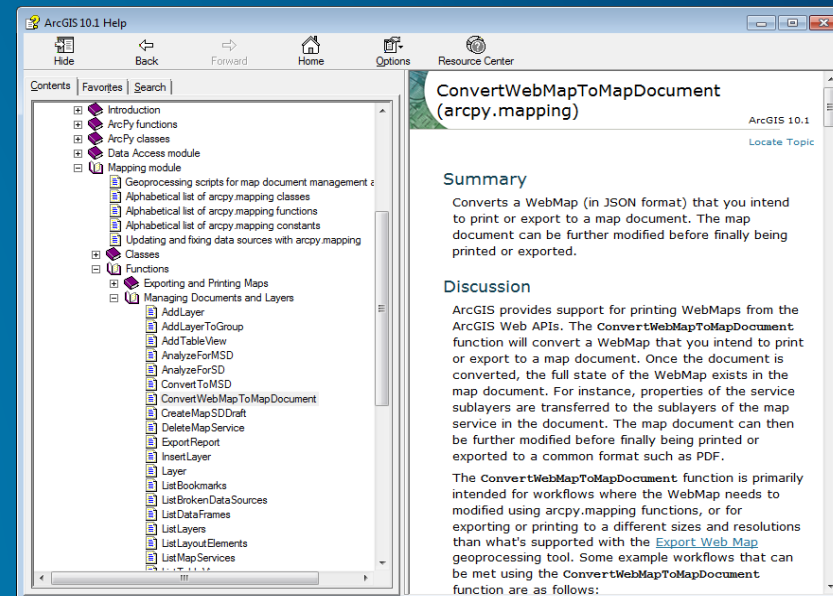
Demo

Printing with custom templates



Custom Print Workflows: ArcPy.Mapping

- New ArcPy.Mapping method for converting Web Maps to MapDocuments
- `ConvertWebMapToMapDocument (webmap_json, {template_mxd}, {notes_gdb}, {extra_conversion_options})`
- Secure services handled via the *extra conversion options* parameter



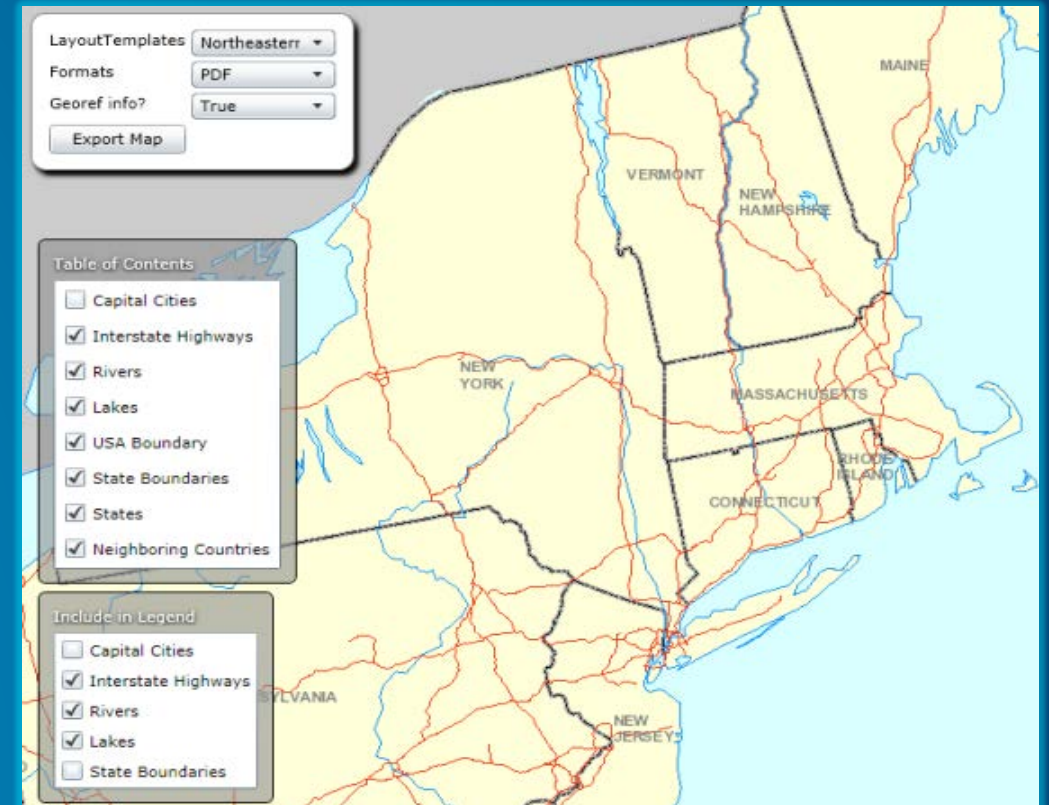
ArcPy.Mapping Workflows

- Once a WebMap is converted to a map document
 - Full capabilities of ArcPy.Mapping on the document
 - Modify content
 - Add content
 - Export using custom options
 - etc.
- See the ArcPy.Mapping help for examples...



ArcPy.Mapping Help Examples

- Use the web help
 - updated samples and discussion
 - two new tutorials:
 - Basic high-quality web map printing:
<http://bit.ly/XEwg8p>
 - Advanced web map printing:
<http://bit.ly/WU1nQh>



Demo

Vector printing

Layers

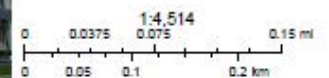


- Other 2
- Webmap
- Other
- polygonLayer
- Outline
- Lots
- Image

Parcel: 073-006-002



- Lots
- World Imagery
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery

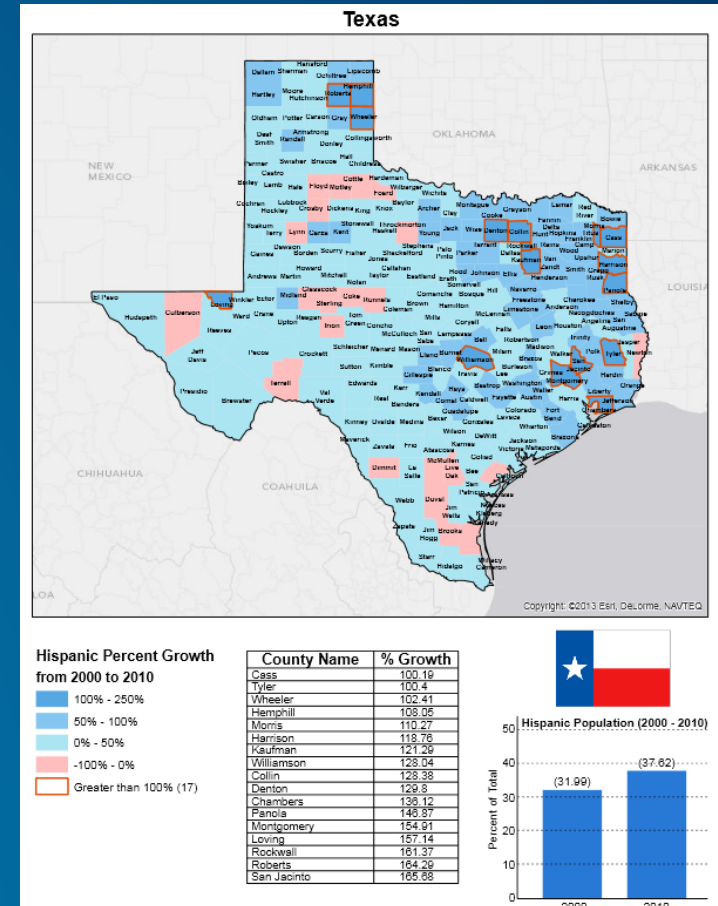


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

March 10, 2015

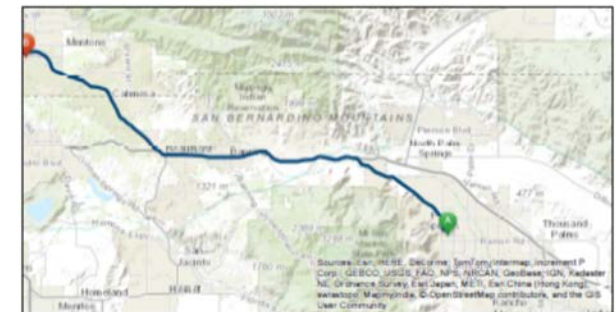
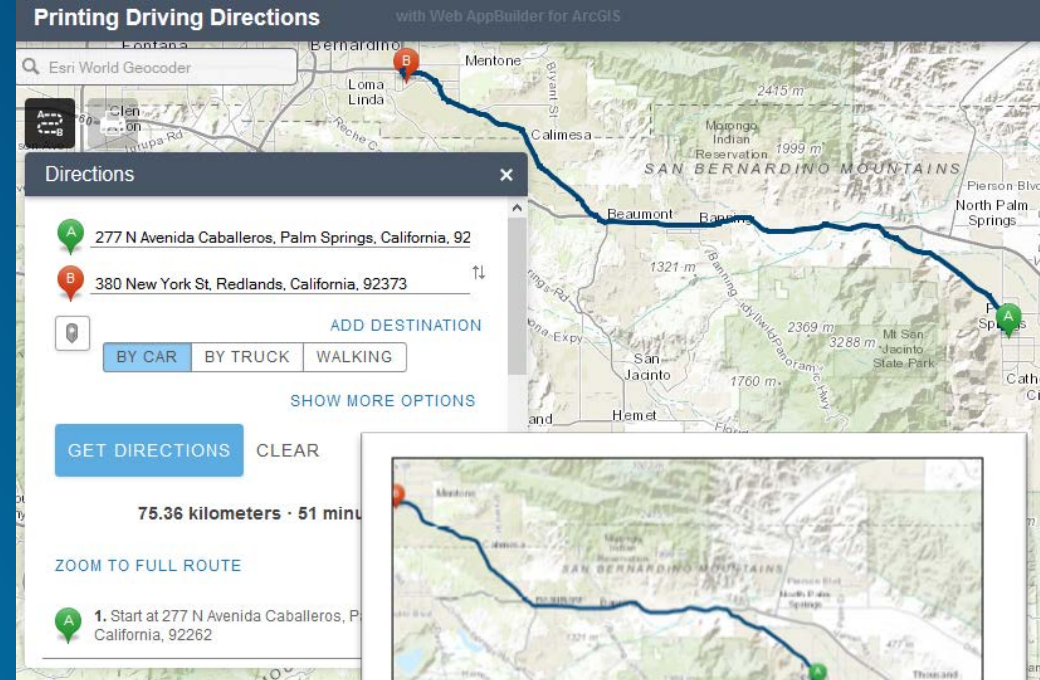
Tables with ArcPy.Mapping

- Data Driven Pages with Dynamic Tables and Charts Sample
 - <http://bit.ly/11Hwtur>
 - Took the sample code and customized it for my needs



Demo

ArcPy.Mapping



<start>

- | | | |
|-----|---|-------|
| 1. | Start at 277 N Avenida Caballeros, Palm Springs, California, 92262 | 0.00 |
| 2. | Go north on N Avenida Caballeros toward E Amado Rd | 0.55 |
| 3. | Turn left on E Alejo Rd | 0.80 |
| 4. | Turn right on N Indian Canyon Dr | 1.61 |
| 5. | Turn left on CA-111 N (E Vista Chino) | 0.11 |
| 6. | Turn right at N Palm Canyon Dr / W Vista Chino to stay on CA-111 N (N Palm Canyon Dr) | 55.45 |
| 7. | Take ramp and go on I-10 W | 55.45 |
| 8. | At exit 77B take ramp on the right to Tennessee Street | 0.35 |
| 9. | Turn left on Tennessee St | 0.61 |
| 10. | Turn left on W Redlands Blvd | 0.43 |
| 11. | Turn right on New York St | 0.33 |

- | | | |
|-----|---|------|
| 12. | Finish at 380 New York St, Redlands, California, 92373, on the left | 0.00 |
|-----|---|------|

Web API Status for Printing

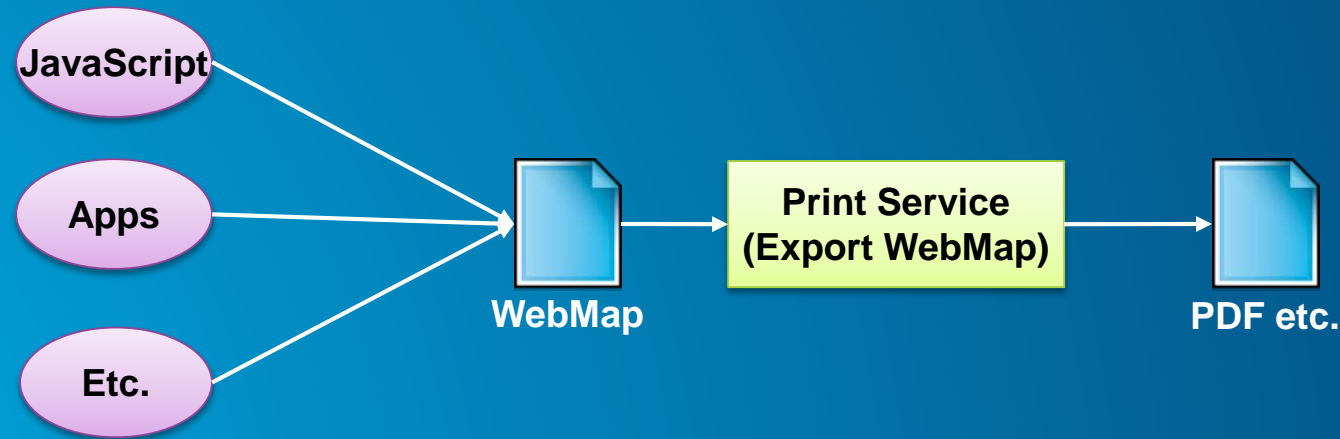
- Printing support was added at early 3.x versions of the WebAPIs
- JavaScript: Print Dijit
- Flex: PrintTask
- Silverlight: PrintTask
- Samples on developers.arcgis.com

Wait! You didn't actually print anything

- Printing services are about generating printable documents (PDF etc.)
- If you wish to send the output to a physical printer automatically
 - Use the ArcPy.Mapping workflow
 - Local printers – xcopy to local share on some printers
 - Cloud printing workflows (e.g. [Google Cloud Print](#))
 - Driverless printing
 - Simple APIs that can be called from Python

Printing Service Recap

- **Print services are powered by WebMaps**
 - Consistent format produced by all the WebAPIs
 - JSON based spec for sharing services, graphics, symbols etc.
- **You can use the out of the box tool, a custom configuration, or an ArcPy.Mapping approach**



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