Overview

- What can you do with the JavaScript APIs
- Review of the ArcGIS Server REST API
- Why JavaScript?
- Working with the ArcGIS JavaScript API
- Getting started building apps
What can you do with the JavaScript API?

- Integrate maps and services into existing web pages
- Display interactive map
- Display your data on an ArcGIS Online base map
- Execute a task and display the results
- Search for an address and display the results
Let’s see what others are doing…
http://www.wireless.att.com/coverageviewer/
<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restaurants</td>
<td></td>
</tr>
<tr>
<td>Shops</td>
<td></td>
</tr>
<tr>
<td>Sightseeing</td>
<td></td>
</tr>
<tr>
<td>Search Distance</td>
<td>0.5 mile</td>
</tr>
</tbody>
</table>

**Current Location**

- Latitude: 32.7082
- Longitude: -117.1651

Location accurate within 42 meters
Last Updated: Tue Jul 12 2011 21:54:08 GMT-0700 (Pacific Daylight Time)
http://gismaps.kingcounty.gov/roadalert/
http://pehmogis.hut.fi/pehmogis/fi/helsinki.html
http://productselector.deere.com/CustomerTool/NACutsHomeServlet
http://www.gap.uidaho.edu/landcoverviewer.html
How do you go from your data to a Mashup?

- Author GIS resource using desktop
- Publish GIS resources to create GIS Services.
  - Each capability is exposed to consumers as an independent GIS Web Service accessible over HTTP
- Use JSAPI to build rich client applications that consume GIS resource
ArcGIS Server REST API

- New at 9.3, greatly enhanced at 10
- Simple view of ArcGIS Server
- ArcGIS Server hosts a Services Directory
  - Used by developer while building application
- Powers Web APIs

Discoverable, accessible, and useable
ArcGIS Server REST API

• All GIS Services are exposed as resources
  - Service level metadata

• Some resources have operations
  - Map Service (export, find, identify)
  - Map Service Layers (query)
  - Image Services (export)
  - Geocode Service (findAddressCandidates, Reverse Geocode)
  - Geoprocessing (execute, submit job)
  - Network Analyst (solve route)
  - Geometry Service (project, buffer, and others)
ArcGIS JavaScript APIs – Why JavaScript?

• JavaScript is one of the most used programming languages in the world.

• Applications run in browser
  - Desktop and Mobile (iOS, Android, …)

• JS Frameworks abstract away the browser complexity
  - YUI, Dojo, EXTJS, jQuery

• Accessible programming language

• IDE’s are getting better. Aptana, Notepad ++, Visual Studio

• Multiple development patterns supported
Race for the fastest browser – HTML5

- **JavaScript Engine**
  - Just in time compilation to byte code
  - Faster property access
  - Efficient garbage collection

- Graphics engine improvements

- DOM improvements

- CSS3
<table>
<thead>
<tr>
<th>Simple Marker Symbol</th>
<th>IE8</th>
<th>IE9</th>
<th>IE10 Test 1</th>
<th>IE10 Test 2</th>
<th>Chrome 11.0</th>
<th>Firefox 4.0.1</th>
<th>Safari 5.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query Time</td>
<td>1031</td>
<td>377</td>
<td>421</td>
<td>76</td>
<td>478</td>
<td>555</td>
<td>547</td>
</tr>
<tr>
<td>Draw Time</td>
<td>1140</td>
<td>201</td>
<td>199</td>
<td>199</td>
<td>148</td>
<td>163</td>
<td>76</td>
</tr>
<tr>
<td>Clear Time</td>
<td>141</td>
<td>29</td>
<td>28</td>
<td>29</td>
<td>9</td>
<td>46</td>
<td>75</td>
</tr>
<tr>
<td>Pan Time</td>
<td>4538</td>
<td>702</td>
<td>542</td>
<td>549</td>
<td>474</td>
<td>518</td>
<td>508</td>
</tr>
</tbody>
</table>

*IE9 – tested with document mode in IE9 standards

*IE10 (Test 1) – tested with document mode in IE9 standards

*IE10 (Test 2) – tested with document mode in IE10 standards
ArcGIS JavaScript API

- Embed maps and tasks from any ArcGIS Server into your website

- Use basemaps provided by ESRI or use your own basemap with your geospatial data

- Map can be in any supported projection

- Built on top of Dojo JavaScript toolkit.
What is Dojo?

- Robust JavaScript Toolkit
- Active Community
- Dojo Dijits
  - Strong Widgeting system
  - Grids, charts, toolbars, trees, and many more
- Powerful eventing model
- Rich client side Graphics

http://dojotoolkit.org
http://dojocampus.org
Integrating Dojo Dijits into your application
function createRotator() {
    var panelRotator = new dojox.widget.Rotator({
        transition: "dojox.widget.rotator.crossFade",
        duration: 2500,
        panes: esriGeowConfig.rotatorPanels
    }, dojo.byId("imgRotator"));

    var controller = new dojox.widget.rotator.Controller({
        rotator: panelRotator,
        commands: "#"
    }, dojo.byId("categories"));
}
ArcGIS JavaScript API Status

- Fast development cycle
  - Initial Release May 2008
  - Current Version 2.4—released July 8th, 2011

- 2.4 works with ArcGIS Server 10 and 9.3 (also works with 10.1 beta)

- When going from one version to the next we try not to break compatibility

- Older versions are set in stone and will not change
  - 1.0 through 2.4
What is in the JavaScript API?

- Map control
- Widgets (Dijits)
  - Overview, Editor, Template Picker, Attribute Inspector, Time Slider, Measurement
- Layers
  - Tiled, Dynamic, FeatureLayer, WMS, WMTS, KML, Graphics
- Graphics
- Tasks
  - GP, Network, Geometry, Query, Locator
- Geometry
- Symbology
  - ArcGIS Server Symbology
- Toolbars
  - Edit, Draw, Navigation
Tour of API through SDK...
Let’s build some apps...
ArcGIS.com

- ArcGIS.com is an easy way to author maps for the web
- JSAPI can read ArcGIS Web Maps
- Build applications quickly by consuming ArcGIS Web Maps
ArcGIS JavaScript API – What do you need to know?

- **Online SDK** -- [http://links.esri.com/javascript](http://links.esri.com/javascript)
  - Sample driven
  - Code gallery
  - Samples powered by an ArcGIS Server sample server
    - [http://sampleserver1.arcgisonline.com/arcgis/rest/services](http://sampleserver1.arcgisonline.com/arcgis/rest/services) (9.3.1)
    - [http://sampleserver2.arcgisonline.com/arcgis/rest/services](http://sampleserver2.arcgisonline.com/arcgis/rest/services) (9.3.1)
    - [http://sampleserver3.arcgisonline.com/arcgis/rest/services](http://sampleserver3.arcgisonline.com/arcgis/rest/services) (10.0)
    - [http://sampleserver4.arcgisonline.com/arcgis/rest/services](http://sampleserver4.arcgisonline.com/arcgis/rest/services) (10.0)
    - [http://sampleserver5.arcgisonline.com/arcgis/rest/services](http://sampleserver5.arcgisonline.com/arcgis/rest/services) (10.0)

- **JavaScript hosted by ESRI**
  - [http://serverapi.arcgisonline.com/jsapi/arcgis/?v=2.4](http://serverapi.arcgisonline.com/jsapi/arcgis/?v=2.4) and [http://serverapi.arcgisonline.com/jsapi/arcgis/?v=2.4compact](http://serverapi.arcgisonline.com/jsapi/arcgis/?v=2.4compact)
  - Flexible release cycle
  - Hosted by ArcGIS Online -- 24/7