Building Mashups Using the ArcGIS JavaScript APIs

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The Simple ArcGIS JSAPI Demo

Come on Jeremy, It can’t be that easy.

What about Google Maps?

Alright I give you those two.

You will never be able to do 3D in VE...

Building Enterprise Mashups with ArcGIS Server

• Develop custom JavaScript applications that mashup ArcGIS services, Google Maps, and Microsoft Virtual Earth

• You can build ArcGIS Server Web applications using pure JavaScript APIs powered by backend REST services

• ArcGIS Server hosts a Services Explorer
  – Used by developer while building mashup application

• No development or deployment license is required on the Web server hosting your application
ArcGIS Server – Publishing GIS Web Services

• Author GIS resources (eg maps, locators, models) using desktop.

• Publish GIS resources to create GIS Services.

• Each capability is exposed to consumers as an independent GIS Web Service accessible over HTTP via SOAP or REST

• [http://resources.esri.com/arcgisserver](http://resources.esri.com/arcgisserver)
ArcGIS Server 9.3 REST API

• Simple view of ArcGIS Server

• 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)
  – Geometry Service (project, simplify, and others*)
Why JavaScript?

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

• Pure client development

• It's not early 2000 any more
  – JS Frameworks abstract away the browser complexity

• Stability
  – No new changes in ECMAScript since 1999

• Avenue is back!
ArcGIS JavaScript API
ArcGIS JavaScript API

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

• Use content provided by ESRI or use your own content as a basemap

• Map can be in any supported projection
  – This is a big advantage…

• Built on top of Dojo JavaScript toolkit.
  – Graphics support, community, Dijits
ArcGIS JavaScript API

- Maps
  - Tiled
  - Dynamic

- Graphics (geometry + attributes + symbol + InfoTemplate)
ArcGIS JavaScript API

• Tasks
  – QueryTask
  – Locator
  – FindTask
  – IdentifyTask
  – GeometryService
  – Geoprocessor (synchronous or asynchronous)
    • As data or as map image
ArcGIS JavaScript API

• Online SDK
  – http://resources.esri.com/arcgisserver/apis/javascript/arcgis
  – Sample driven
  – Samples powered by an ArcGIS Server sample server
    • http://sampleserver1.arcgisonline.com/arcgis/rest/services
    • http://sampleserver2.arcgisonline.com/arcgis/rest/services

• JavaScript hosted by ESRI
  – http://serverapi.arcgisonline.com/jsapi/arcgis/?v=1
  – Flexible release cycle
  – Hosted by ArcGIS Online
    • 24/7
ArcGIS JavaScript API Applications

• Can be a very simple user application, but still provides sophisticated functionality
  – http://jbartley/devsumplenary/driveTimeGPtoQuery.html

• It can also be a very sophisticated user application
  – http://jbartley/AGSJS/SurfaceProfile.html

• Integrate with other Web 2.0 libraries
  – http://serverx.esri.com/ArcGISJavaScriptAPI/supertuesday.html

• Powerful and customizable Info Windows

• Strong symbology model
ArcGIS JavaScript Extension for Virtual Earth
ArcGIS JavaScript Extension for Virtual Earth

• Combine GIS content hosted in ArcGIS Server with content on top of Virtual Earth base maps.

• Works with backend ArcGIS Server services.

• Content (VE Shapes, Tiles) can be viewed in 2D or 3D

• Tiled Maps are in the WGS 1984 Web Mercator projection
  – WKID: 102113
  – Same as Google Maps
ArcGIS JavaScript Extension for Virtual Earth

• Maps
  – Tiled

• VEShape (geometry + symbol + InfoBox)
  – All task results can be converted to
    • VEShape
    • VEShapeLayer
ArcGIS JavaScript Extension for Virtual Earth

• Tasks
  – QueryTask
  – Locator
  – FindTask
  – IdentifyTask
  – Geometry
  – Geoprocessor (synchronous or asynchronous)
    • Only data, no map image results
ArcGIS JavaScript Extension for Virtual Earth

• Online SDK
  – Interactive SDK
  – Samples powered by an ArcGIS Server sample server
    • [http://sampleserver1.arcgisonline.com/arcgis/rest/services](http://sampleserver1.arcgisonline.com/arcgis/rest/services)
    • [http://sampleserver2.arcgisonline.com/arcgis/rest/services](http://sampleserver2.arcgisonline.com/arcgis/rest/services)

• JavaScript hosted by ESRI
  – Flexible release cycle
  – Hosted by ArcGIS Online
    • 24/7
ArcGIS JS Extension for VE Applications

• Build Mashups with Virtual Earth
  – http://jbartley/mymashups/serviceareavegp.html

• Interact with your data on a VE base map

• Push GIS analysis to the general public
  – Interactive SDK Message in a bottle
  – VE Hurricane track query
    http://serverx.esri.com/arcgisjsextenderforve/atlantic_hurricanes.html
ArcGIS JavaScript Extension for the Google Maps API
ArcGIS JavaScript Extension for the Google Maps API

- Combine GIS content hosted in ArcGIS Server with content on top of Google Maps base maps
- Works with backend ArcGIS Server services
  - REST API
  - KML
- Applications can be built in *traditional* Mashup form or as Google Mapplets
- Tiled Maps are in the WGS 1984 Web Mercator projection
  - WKID: 102113
  - Same as VE
ArcGIS JavaScript Extension for the Google Maps API

• Maps
  – Tiled
  – Dynamic (via GGroundOverlay)

• GOverlay (geometry* + symbol)
  – All task results can be added to the map through the
    esri.arcgis.gmaps.MapExtension
    • Takes care of InfoWindow, click listeners, overlayOptions,
      and infowWindowOptions
ArcGIS JavaScript Extension for the Google Maps API

• Tasks
  – QueryTask
  – Locator
  – FindTask
  – IdentifyTask
  – Geometry
  – Geoprocessor (synchronous or asynchronous)
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ArcGIS JavaScript Extension for the Google Maps API

• Build Mashups with Google Maps

• Interact with GIS data on Google Maps base map

• Push GIS analysis to the general public
  – http://serverx.esri.com/arcgisjsextenderforgmaps/GP_ProfileFromRoute.html
ArcGIS JavaScript Extension for Google Mapplets

• Mapplets are mini-applications that run within Google Maps.

• ArcGIS Server Users could choose to publish Google Mapplets that expose a certain functionality to the user.

• Mapplets are accessible from http://maps.google.com
Questions?