ArcGIS API for JavaScript – Advanced Topics
Jeremy Bartley, Kelly Hutchins, and Derek Swingley
Agenda

- Map Enhancements
- InfoWindow
- ArcGIS.com Webmap integration
- FeatureLayer
- Mobile Development
- HTML5
Enhanced Map Control
Wrap Around
Wrap Around -- Notes

- Show no more than 360 degrees at a time

- Map.extent is always linear

- Normalize geometries when working with the server if geometry is beyond +/-180
  - esri.geometry.normalizeCentralMeridian(geoms)

- esri.tasks auto normalizes for you
  - esri.config.defaults.geometryService
Wrap around notes

- Map control must be used with Web Mercator and ArcGIS Online WGS 84 tiling schemes as the base layer.

- ArcGIS Map & Image services work best if they ArcGIS server 10 or greater
  - Support WKT requests with dynamic central meridian

- Services that don’t support WKT work but may get clipped when getting close to the dateline.
Client side geodesic operations

- `esri.geometry.geodesicAreas(gcsPolygons, unit)`
  - [Sample](#)

- `esri.geometry.geodesicLengths(gcsPolylines, unit)`
  - [Sample](#)

- `esri.geometry.geodesicDensify(gcsPolylinePolygon, maxSegmentLength)`
  - Densifies the geometry along the great ellipse
Snapping

- By default snap to all layers in the map
- Snap to points, endpoint, vertices, and edge
- Snapping Manager controls snapping options
InfoWindow and InfoTemplate
Info Window

- Title + Content

- Place anywhere on map
  - `InfoWindow.show(mapPoint, anchorPlacement)`

- Shown when clicked on a graphicslayer if Graphic has defined infoTemplate
Content of InfoWindow

Format Info Window Content

The InfoTemplate class is used to define the content and title for an Info Window. If you are using version 2.2 or greater, you can define the content and title using either a string or function. Prior to version 2.2, you can only use a string.

Format content using a string

To format content using a string, you will create a string value that defines the content to display. The string can include HTML markup, attribute placeholders and formatting functions. Let’s look at a few examples of ways you can format content using a string:

- Simple String
  In this example, a simple string is used to display text in an info window.
  ```java
  myTemplate.content = "This is a location of interest";
  ```

- HTML Markup
  You can also include HTML markup in the string, in this example the info window will contain several paragraphs with some content in bold.
  ```java
  myTemplate.content = "This is some content with
  <b>HTML</b> markup!<p>This is a paragraph
  </p><p>Another Paragraph</p>"
  ```

- Placeholders
  Use placeholders, created using ${}, to define the attribute value that should display in the info window. At runtime parameter substitution occurs and the placeholder is replaced with the actual attribute value for the selected graphic. In this example, OIL CUMULATIVE and YEAR are valid attribute fields and will be replaced with the value when the info window is displayed.
  ```java
  myTemplate.content = "<b>Status</b>: ${STATUS} +
  "<b>Cumulative Gas</b>: ${CUM_GAS} MCF" +
  "<b>Total Acres</b>: ${APPROXACRE} +
  "<b>Av. Field Depth</b>: ${AVG_DEPTH} meters";
  ```

Let’s go to the doc...
Customize look of InfoWindow

- Simple InfoWindow can be stylized with CSS

- Default InfoWindow can be stylized by creating a new sprite defining the colors and then using it in your app
Extend InfoWindowBase to create your own InfoWindow

- Need to implement a few methods
  - Hide, show, setContent, setTitle, resize

- Once implemented you can set your new InfoWindow on the map

- API for working (show/hide) with InfoWindow will remain unchanged.
Popups

- Implementation of InfoWindowBase
  - Navigate through selection
  - Zoom and highlight
  - Maximize the info window
PopupMobile

- Inherits from InfoWindowBase
- Designed for small screen size
  - Embedded Maps
  - Mobile
ArcGIS.com Integration
esri.arcgis.utils.createMap()

- Creates an instance of esri.Map initialized with all layers specified in the webmap

- Supports:
  - All basemap and operational layers
  - Supports features stored in the map
  - Supports webmap defined popups

- Constructed from arcgis online webmap ID or by value from JSON
ArcGIS.com webmap popups

- If webmap has defined popups createMap will:
  - Listen for map click events and when clicked query the layer for each defined popup
  - Behavior can be disabled via ignorePopups option
  - Selected geometry is generalized if possible

- You can style the InfoWindow that contains the popup using css
  - dojo.addClass(map.infoWindow.domNode, "chrome");
Extending createMap’s InfoWindow

- Uses custom InfoWindow extended form InfoWindowBase
- Handles paging, media (one or multiple), and supports full screen view of content
- Includes an actions bar that supports “zoom to”

- You can get the currently selected feature from the InfoWindow. Use it to add your own tool to the actions bar
Use ArcGIS.com Web application Templates to get started!
esri.layers.FeatureLayer
FeatureLayer

Client Side

- Data
- Feature Selections

Web Editing

- Pagination
- Incident Areas

Select Fields  Clear Selection
FeatureLayer

Series of Blog Posts on Performance and Best Practices

How many graphics?

Vector Tiling

maxAllowableOffset

Generalize Features
Mobile Development
Mobile support in JSAPI

- Touch enabled Map control
- Touch enabled widgets
- Touch enabled move support
iOS

- Best Mobile Browser
- Supports two finger pinch zoom on map control
- Create and edit geometries
- No access to photos/videos from the browser
- No support for freehand drawing style

Browser supports
- HTML5 Geolocation API
- Web Storage
- Offline Web Applications
- Access to GyroScope
Blackberry Torch

- Supports touch pan
- Supports create/edit of geometries
- Does have access to the camera roll
- No support for two finger touch
- No support for freehand drawing style
Android

- 2.2 and greater
  - Also depends on the firmware that the device manufacturers apply to the phone – Sprint EVO

- SVG is not supported on Android.
  - JSAPI falls back to canvas

- Can create geometries, but not edit them

- No support for two finger touch

- Does have access to the camera roll
Mobile Widgets

- Mobile popup
- Touch-aware thumbnail gallery

- Displays horizontal scrolling view of thumbnail images.

- Touch access so users can flick through the gallery to select or view items.
Mobile Frameworks

• Native application look and feel
  - Animated transitions
  - Toolbars
  - Buttons
  - List views
jQuery Mobile

- Announced in late 2010
- Currently in alpha 3
- Active user community
- Lots of samples and doc
- Theme Framework
Dojox.mobile

- Features and behavior similar to jQueryMobile
- Good demos
- Poor documentation
Sencha

- ExtJS
- UI components
- iPad support
- Local storage support
- Data integration
- Apple iOS and Android only
  - Blackberry coming soon…
HTML5
HTML5 components in (or soon to be in) the JSAPI

- Canvas (pixel control and android graphics)
- CSS3 Transitions
- Cross Origin Resource Sharing
- Web Workers
  - CPU Intensive Operations (asynch data processing, client geometric operations)

High performance browsers!
What we are teaching app developers

- Geolocation API
- Web Storage & Offline Web Apps (app cache)
- File API, Drag and Drop API