

DevSummit DC

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ArcGIS Runtime SDKs: Building Java Apps

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ArcGIS Runtime SDK for Java

The screenshot displays the ArcGIS Runtime SDK for Java interface. On the left, a vertical toolbar lists various map features: All Layers, Selected Layers, Division Break, Aerial Hazard, Camp, Drop Point, Fire Origin, Fire Station, First Aid Station, Safety Zone, Spot Fire, MediVac Site, and Mobile Weather Unit. The main map area shows a topographic map with a red dashed path. A text box overlaid on the map contains the following text: "Left click at a point on an ocean to calculate the path a bottle would follow from that point for the specified number of days, based on ocean currents. Right click to remove graphics." Below the text is a "Days:" label followed by a text input field containing the value "365". The map also shows labels for "Sohm Plain", "Hatteras Plain", "Bermuda Rise", "North American Basin", and "Sargasso Sea". A "Vehicle Commander" window is visible at the top, and a "911" button is in the bottom right corner.

More than just mapping

- **Maps**
- **Editing**
- **Analysis**
- **Online and offline**

Runtime as a development platform

1. **Download and install the SDK (no cost)**
2. **Samples**
3. **Documentation**
4. **Esri Support**

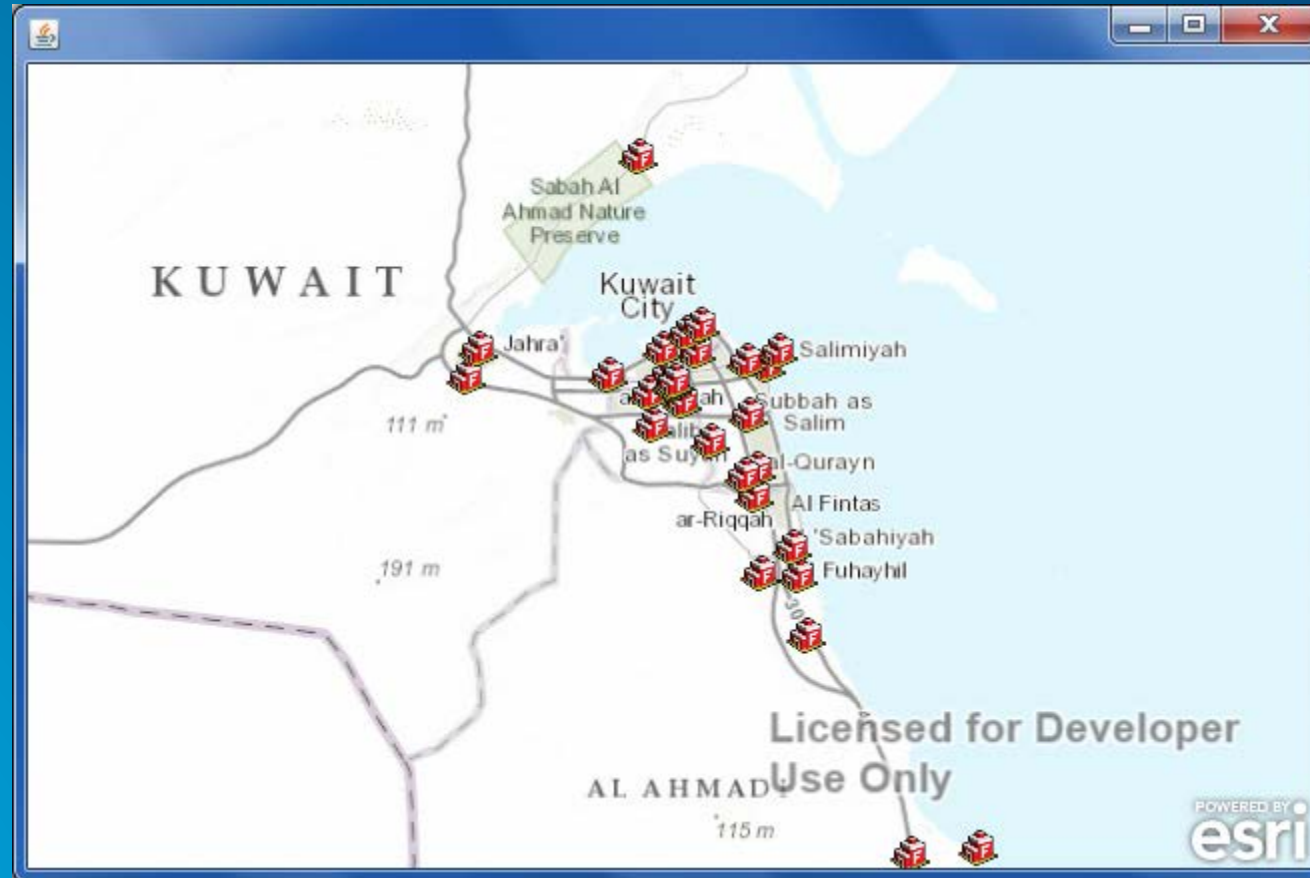
ArcGIS for Developers

<http://developers.arcgis.com>

Let's look at...

- **Maps and layers**
- **Events and listeners**
- **Editing**
- **Geoprocessing and analysis**

Map control: class JMap



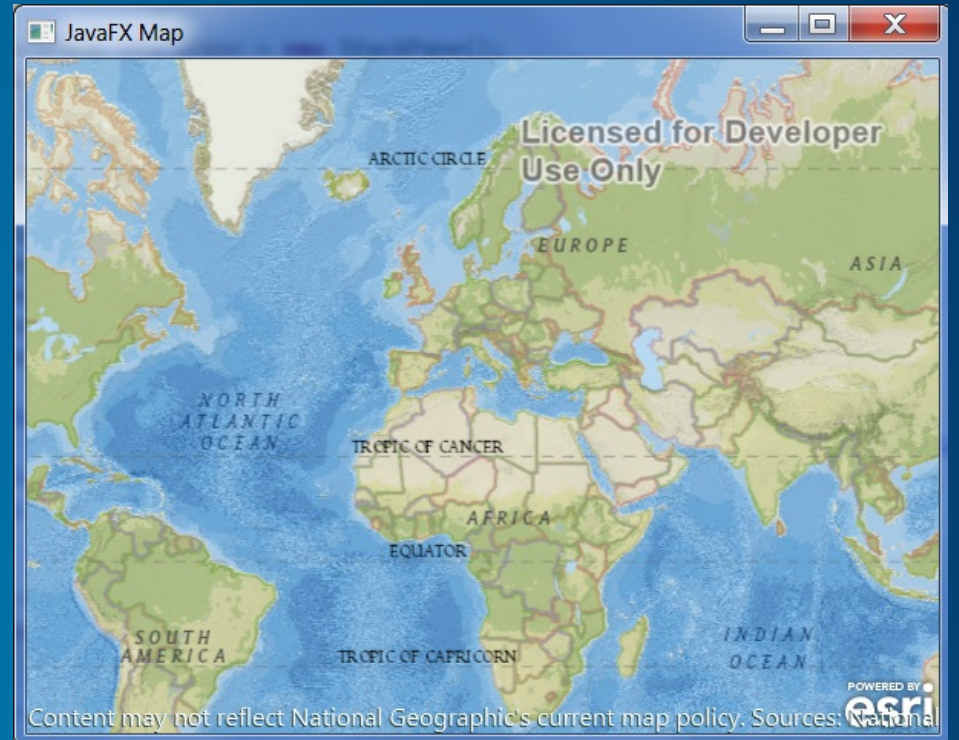
JavaFX support (beta feature)

- **JavaFX: Java's rich client platform**
- **New class FXMap in Runtime**

```
map = new FXMap();
```

```
StackPane stackPane = new StackPane();  
stackPane.getChildren().add(map);  
Scene scene = new Scene(stackPane);  
primaryStage.setTitle("JavaFX Map");  
primaryStage.setWidth(1000);  
primaryStage.setHeight(700);  
primaryStage.setScene(scene);  
primaryStage.show();
```

```
tiledLayer = new ArcGISTiledMapServiceLayer(  
"http://services.arcgisonline.com/arcgis/rest/se  
rvices/NatGeo_World_Map/MapServer");  
map.getLayerList().add(tiledLayer);
```



Mapping with online data

- Tiled map services
- Dynamic map services
- Feature services
- OpenStreetMap tile servers
- WMS
- KML

Web maps in ArcGIS Runtime

- **Make your map in ArcGIS Online or Portal for ArcGIS**
- **Load it in Runtime app**
- **Minimizes your code**
- **Advanced: download the map**

Demo: load a web map

Mapping with offline data

- Map packages
- Tile packages
- Runtime geodatabase
- Direct GIS data access (new)
 - Rasters
 - Shapefiles
 - GeoPackages (vector and raster)

Online meets offline

- **Download tiled map services**
 - **ExportTileCacheTask**
 - Or make tile packages in ArcGIS Desktop
- **Feature services offline: download, edit, sync**
 - **GeodatabaseSyncTask**
 - Or “Share As > Runtime content” in ArcGIS Desktop

Custom layers

- **Override Layer or a subclass of Layer**
- **Hint for feature-like data**
 - **Fast access/synchronous: override GraphicsLayer**
 - **Slow access/asynchronous: override FeatureLayer**

Events and listeners

- **Dozens of listener interfaces**
- **Common use cases:**
 - Listen for the map to be ready
 - Listen for layers to load (or failure to load)

Demo: events and listeners

Editing

- Feature data
- Live editing of feature services
- Download, edit offline, and sync of feature services
- <https://developers.arcgis.com/java/guide/edit-features.htm>

Geoprocessing and analysis

- **GeometryEngine (local, high performance)**
- **Class Geoprocessor**
 - Geoprocessing services
 - Geoprocessing packages (.gpk)
- <https://developers.arcgis.com/java/guide/run-a-geoprocessing-task.htm>

All together now: the Vehicle Commander template

- Java SE
- ArcGIS Runtime 10.2.4
- In-vehicle application
- Live data
- Disconnected capabilities
- Analysis
- Get it on GitHub: <https://github.com/Esri/vehicle-commander>

Demo: Vehicle Commander



Understanding our world.