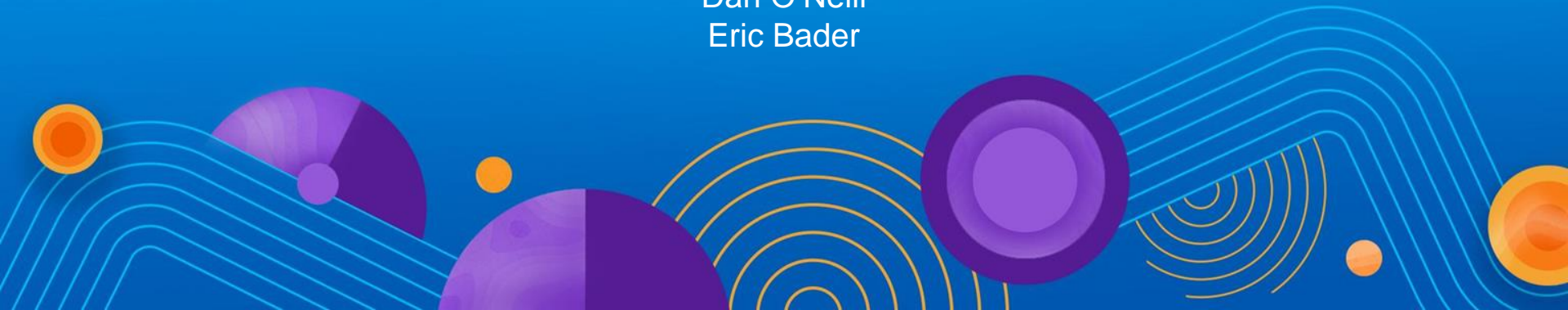


Playing Nicely with our Java API's

Dan O'Neill
Eric Bader



Agenda

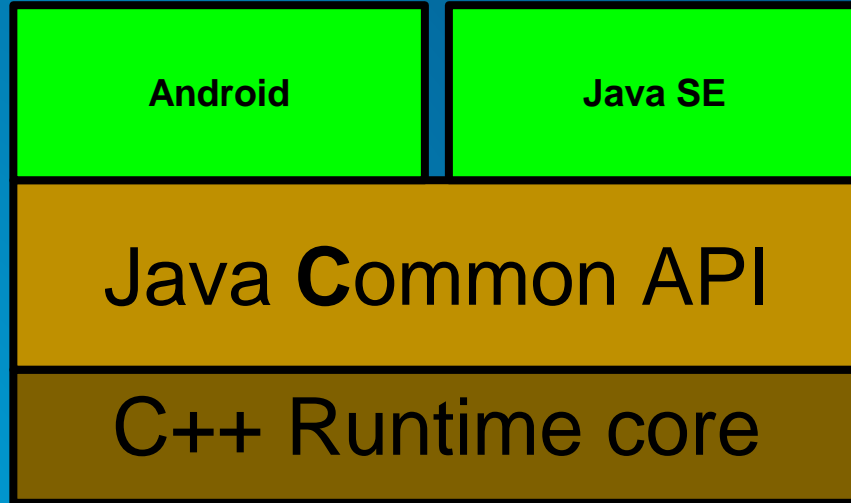
- **Runtime Architecture Overview**
 - **Esri Open Source**
 - **Example Apps**
 - **Open Source Geometry API**

Runtime

Quartz Architecture

Runtime Architecture

Android & Java



Runtime Architecture

Android & Java

Android

```
maven{ url 'https://esri.bintray.com/arcgis' }
```

```
compile 'com.esri.arcgisruntime:arcgis-android:100.0.0'
```

Java

```
buildscript {  
    repositories {  
        maven { url 'https://esri.bintray.com/arcgis' }  
    }  
    dependencies {  
        classpath 'com.esri.arcgisruntime:gradle-arcgis-java-plugin:1.0.0'  
    }  
}  
  
arcgis.version = '100.0.0'
```

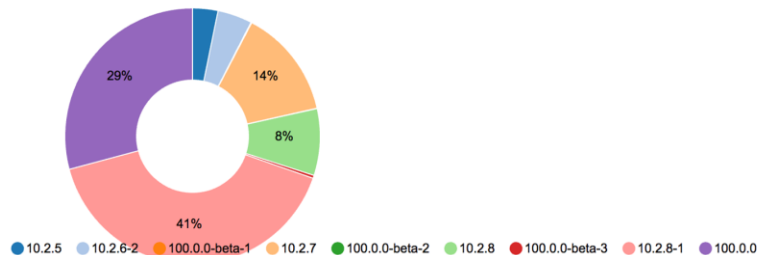
Bintray

Distribution made easy for automated software distribution

- **Distribution as a service**
 - **Software as a service**
 - Store
 - Publish
 - Download
 - Promote
 - Distribute
- **Private repositories**
- **Automated Distribution**
- **Fast and reliable**

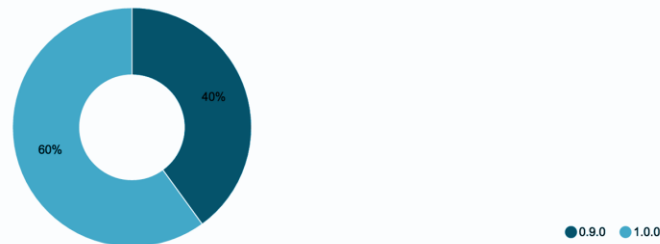
arcgis-android downloads

Total downloads: 4,077



gradle-arcgis-java-plugin downloads

Total downloads: 850



Dependency Management Plugins

Discover Esri and ArcGIS

Maven

```
<dependency>  
  <groupId>com.esri.arcgisruntime</groupId>  
  <artifactId>arcgis-java</artifactId>  
  <version>100.0.0</version>  
</dependency>
```

maven

```
<plugin>  
  <groupId>com.esri.arcgisruntime</groupId>  
  <artifactId>arcgis-java-maven-plugin</artifactId>  
  <version>1.0</version>  
  <executions>  
    <execution>  
      <phase>compile</phase>  
      <goals>  
        <goal>arcgis</goal>  
      </goals>  
    </execution>  
  </executions>  
  <configuration>  
    <version>100.0.0</version>  
  </configuration>  
</plugin>
```

Dependency Management Plugins

Discover Esri and ArcGIS

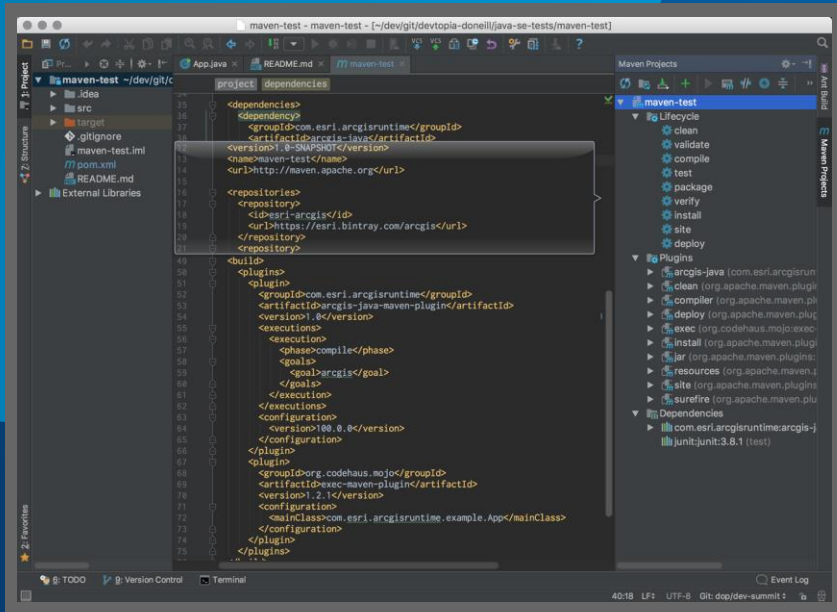
Gradle



```
buildscript {  
    repositories {  
        maven { url 'https://esri.bintray.com/arcgis' }  
    }  
    dependencies {  
        classpath 'com.esri.arcgisruntime:gradle-arcgis-java-plugin:1.0.0'  
    }  
}  
  
arcgis.version = '100.0.0'
```


Dependency Management Plugins

Demo



```
35 <dependencies>
36   <dependency>
37     <groupId>com.esri.arcgisruntime</groupId>
38     <artifactId>arcgis-java</artifactId>
39     <version>1.0.0</version>
40     <name>maven-test</name>
41     <url>http://maven.apache.org</url>
42   </dependency>
43 </dependencies>
44 <repositories>
45   <repository>
46     <id>esri-arcgis</id>
47     <url>https://esri.bintray.com/arcgis</url>
48   </repository>
49 </repositories>
50 <build>
51   <plugins>
52     <plugin>
53       <groupId>com.esri.arcgisruntime</groupId>
54       <artifactId>arcgis-java-maven-plugins</artifactId>
55       <version>1.0.0</version>
56     </plugin>
57     <execution>
58       <phase>compile</phase>
59       <goals>
60         <goal>arcgis</goal>
61       </goals>
62     </execution>
63   </executions>
64   <configuration>
65     <version>100.0.0</version>
66   </configuration>
67 </plugin>
68 <plugin>
69   <groupId>org.codehaus.mojo</groupId>
70   <artifactId>exec-maven-plugin</artifactId>
71   <version>2.1</version>
72   <configuration>
73     <mainClass>com.esri.arcgisruntime.example.App</mainClass>
74   </configuration>
75 </plugin>
76 </plugins>
```

<https://github.com/Esri/arcgis-runtime-demo-java/tree/master/dependency-management>

Open Source

Esri



Java/Android Open source projects

- **Geometry API Java**
 - Enable spatial data processing in 3rd Party data-processing solutions
- **GeoEvent**
 - Custom connectors for ArcGIS GeoEvent Extension for Server
- **ArcGIS Runtime SDK for Android**
 - Samples
 - Demos
 - Example Apps
- **ArcGIS Runtime SDK for Java**
 - Samples
 - Demos

Runtime Android

Example Apps Collaboration

Contribute

Open Source

<https://esri.github.io/#Android>

- **ArcGIS Android SDK**
 - **Samples open sourced on GitHub**

<https://github.com/Esri/arcgis-runtime-samples-android>

- **ArcGIS Java SDK**
 - **Samples open sourced on GitHub**

<https://github.com/Esri/arcgis-runtime-samples-java>

- **Example Apps**
 - **Maps App**
 - **Nearby**
 - **Ecological Marine Unit (EMU) Explorer**

[*https://blogs.esri.com/esri/arcgis/2017/02/06/arcgis-runtime-example-apps/*](https://blogs.esri.com/esri/arcgis/2017/02/06/arcgis-runtime-example-apps/)

Contribute

Example Apps

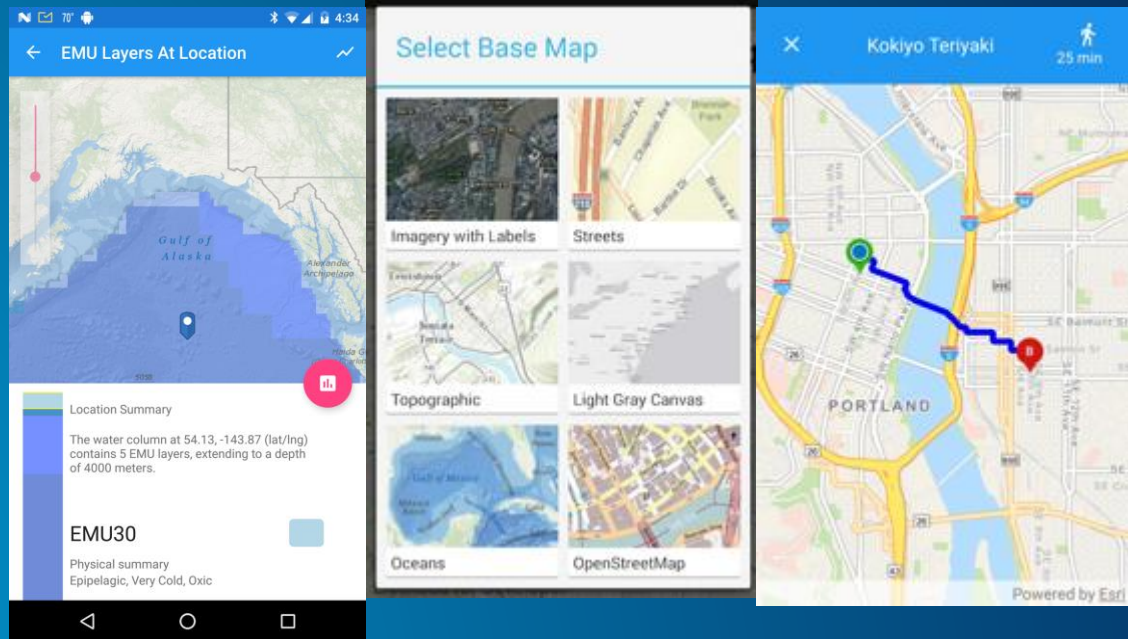
The Example Apps provide a template app for Android devices that can be used as as starter apps.

- **Fork**
 - **The repo to have a local mirror of the repo**
- **Extending for your own use**
 - **Use as a starting point to add specific features for your org**
- **Extend to contribute**
 - **Create pull requests against your upstream to have your contributions reviewed by the Example Apps team.**

Contribute

Example Apps on GitHub

- Get involved
- Report Issues
- Contribute Code
 - Fork it
 - Clone it
 - Configure remotes
 - Send pull requests



<https://github.com/Esri/maps-app-android>

<https://github.com/Esri/ecological-marine-unit-android>

<https://github.com/Esri/nearby-android>

Integration with Nearby

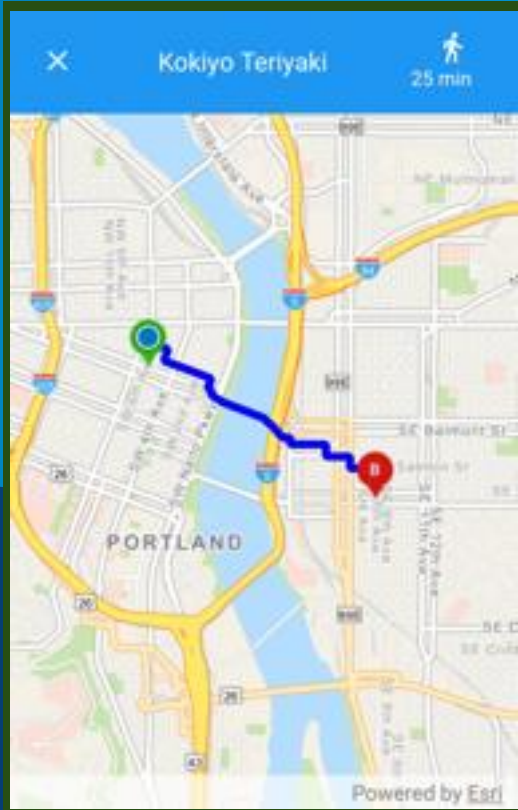
Location Service

App Starts as a List

Runtime Location tied
to MapView

Using Google Location
to get outside of a
MapView

```
// Google's location services are configured in the
// PlacesFragment onCreate method.
if (mGoogleApiClient == null) {
    // Create an instance of GoogleApiClient.
    mGoogleApiClient = new GoogleApiClient.Builder(getActivity())
        .addConnectionCallbacks(this)
        .addOnConnectionFailedListener(this)
        .addApi(LocationServices.API)
        .build();
}
// Once Google's location service is connected,
// you can use the device location to start the
// geocoding search.
@Override public void onConnected(@Nullable Bundle bundle) {
    mLastLocation = LocationServices.FusedLocationApi.getLastLocation(mGoogleApiClient);
    startSearch(mLastLocation);
}
```

Example Apps

Demo

Geometry API

Open Source

Integration with Runtime Quartz

GeoJson Point in Runtime App

- Create a Point Geometry from GeoJSON String
- Create a Runtime Graphic from Geometry Point

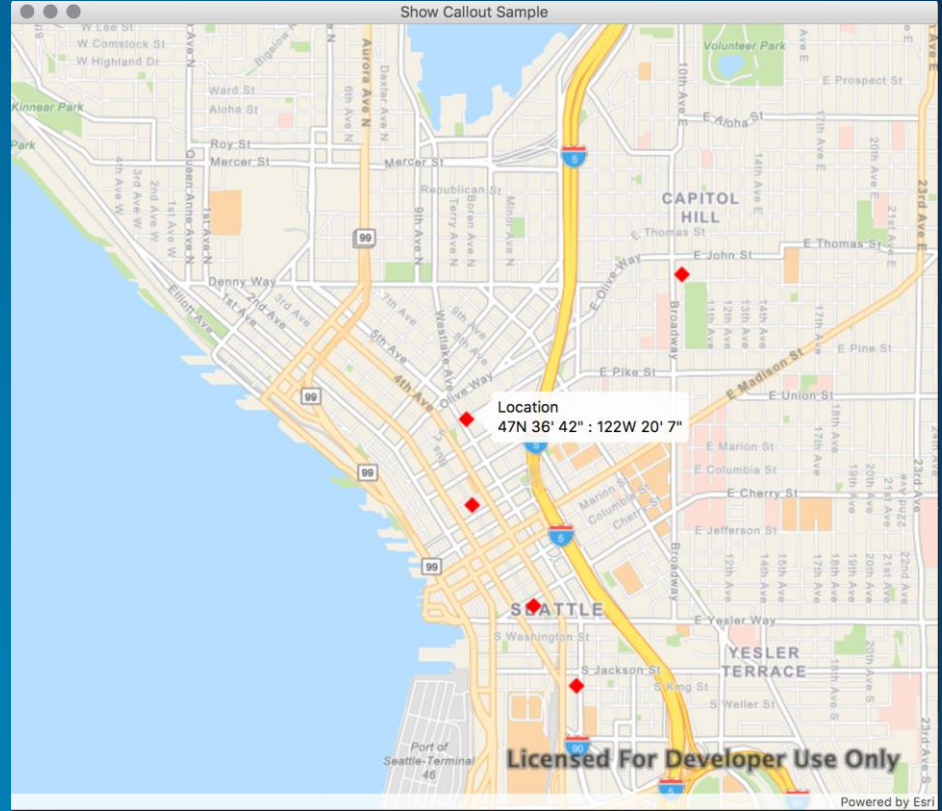
```
/**
 * Converts a geojson string to com.esri.core.geometry.Point.
 *
 * @param jsonPoint geoJson string representation of a Point
 * @return com.esri.core.geometry.Point
 * @throws Exception
 */
static com.esri.core.geometry.Point createPointFromGeoJson(String jsonPoint) throws Exception {

    MapGeometry mapGeom = OperatorImportFromGeoJson.local().execute(GeoJsonImportFlags.geoJsonImportDefaults,
        Geometry.Type.Point,
        jsonPoint,
        null);

    return (com.esri.core.geometry.Point) mapGeom.getGeometry();
}
```

Integration with Runtime Quartz

GeoJson Points displayed on Runtime MapView



```
/**
 * Converts a geojson string to com.esri.core.geometry.Point.
 *
 * @param jsonPoint geoJson string representation of a Point
 * @return com.esri.core.geometry.Point
 * @throws Exception
 */
static Point createPointFromGeoJson(String jsonPoint) throws Exception {
    MapGeometry mapGeom = OperatorImportFromGeoJson.local().execute(GeoJsonImportFlags.geoJsonImportDefaults,
        Geometry.Type.Point,
        jsonPoint,
        null);
    return (Point) mapGeom.getGeometry();
}
```

Code Demo

Other Esri Java solutions and APIs

- **ArcGIS Engine SDK for Java**
 - Standalone desktop client apps for Windows and **Linux**
- **ArcObjects SDK for Java**
 - Desktop Add-ins for ArcMap (not Pro)
 - Server Object Extensions (SOE)
 - Server Object Interceptors (SOI)
- **NOT intended to be used together in the same app or solution!**
 - Different intentions/contexts
 - Desktop vs. Server
- **No plan for ArcGIS Pro to support Java add-ins**

Thank You



esri

**THE
SCIENCE
OF
WHERE**