Best Development Practices and Patterns Using ArcGIS Runtime SDK for Android

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Agenda

• Introduction
• Developer Popup
• Feature Highlight & Drawing Order
• Road Ahead for the Runtime SDKs
• Q & A
Introduction

- Product Engineers Android Development team
  - Xueming Wu
  - Puneet Prakash

Who Are You?
ArcGIS Runtime

- Family of SDKs for multiple platforms
  - Consistent capabilities
- Native to the platform
  - For building great apps
- Lightweight and fast
- Powerful
- Easy
Part of the ArcGIS platform

- ArcGIS Online / Portal
  - Maps, services, content and Organization branding

- ArcGIS for Server
  - Services

- ArcGIS for Desktop
  - Packages
SDK Platforms

- **Android 10.1.1**
  - Java/Android

- **JavaSE 10.1.1**
  - Java Win/Linux

- **QT 10.2 BETA**
  - C++ Win/Linux

- **iOS 10.1.1**
  - Objective-C Cocoa Touch

- **OS X 10.2 BETA**
  - Objective-C Cocoa

- **Windows Mobile 10.1.1**
  - .NET

- **WPF 10.1.1**
  - .NET/XAML

- **Windows Phone 10.1.1**
  - .NET/XAML

- **Windows Store 10.2 BETA**
  - .NET/XAML

Core Runtime
Runtime form factors

Desktop
- OS X
- WPF
- QT
- JavaSE

Phones and tablets
- Windows Store
- Windows Mobile
- iOS
- Android
- Windows Phone

Embedded
ArcGIS Android SDK Dependencies

- Java Development Platform (JDK 6)

- Eclipse Development Platform (3.6.2+ Helios)

- Google Android SDK 2.3.3 (API 10) and above

- Google ADT for Eclipse
  - https://dl-ssl.google.com/android/eclipse/

- Android powered phone, 2.3.3+
  - Support for emulator (4.0.3+)
Popup API

UI and behaviors for displaying and editing information about graphics.
General workflow of using popup API

• Display information using popups
  - Instantiate PopupContainer
  - Create a Popup and add it to the PopupContainer
  - Display PopupContainerView

• Handle user interaction

• Edit information using popups

• Customize UI
Popup Configured in Web Map

• **Instantiate PopupContainer**
  ```java
  MapView map = ...;
  PopupContainer popupContainer = new PopupContainer(map);
  ```

• **Add a Popup to the PopupContainer**
  ```java
  Layer layer = ...;
  int subLayerId = ...;
  Graphic graphic = ...;
  ....
  Popup popup = layer.createPopup(map, subLayerId, graphic);
  popupContainer.addPopup(popup);
  ```

• **Display PopupContainer View**
Developer Popup

- Create a PopupInfo for a map layer
- Modify PopupInfo properties
- Create a Popup for a feature
- Change Popup properties
- Display popup in a fragment
- Support editing workflow
Create a PopupInfo for a map layer

- ArcGISFeatureLayer
  ```javascript
  popupInfo = featureLayer.createPopupInfo();
  ```
- ArcGISDynamicMapServiceLayer
  ```javascript
  popupInfo = dml.createPopupInfo(subLayerId);
  ```
- ArcGISTiledMapServiceLayer
  ```javascript
  popupInfo = tiled.createPopupInfo(subLayerId);
  ```
Modify PopupInfo properties

• Add popup title

popupInfo.setTitle("Facilities: {description}");

• Change the properties of attribute fields
  - visible
  - Editable
  - Value format

• Add media info
  - Images
  - charts

• Show/hide attachments
Create a Popup for a feature

popup = new Popup(mMapView, popupInfo, gr);
Change Popup properties

- *Turn on geometry info*
- *UI customization*
  - *Font*
  - *Size*
  - *Separator*
- *Set up edit capabilities*
  - *Editable*
  - *Deletable*
  - *Allow geometry edit*
Display popup in a fragment

FragmentActivity activity = (FragmentActivity) mMapView.getContext();
FragmentTransaction transaction =
    activity.getSupportFragmentManager().beginTransaction();
transaction.setCustomAnimations(R.anim.popup_rotate_in,
    R.anim.popup_rotate_out);
transaction.add(android.R.id.content, fragment, null);
transaction.addToBackStack(null);
transaction.commit();
Support editing workflow

- *Edit attributes*
- *Edit attachments*
- *Delete a feature*
- Commit edits to server
Feature Highlight & Drawing Order
Feature Highlight

- Selected features have symbol representation
  - Set the color for the selected Graphic
  - Add the Graphic to the set, Selected Graphic
Graphic objects Z order property

- Manage the draw order of graphic objects
  - Bring the graphic to the front
  - Push the graphic to the back
  - Get the draw order for a given graphic
  - Get the max and min draw order of the graphics Collection
Demo
What's coming for Runtime…

• 10.2
  - Offline map use
    - Being productive offline
    - Network/geocode/search
  - Performance Improvements (static/dynamic mode)
  - Geotriggers
  - Security (OAuth, SAML)
  - Simplification of apis
  - New developer site (with better doc system)

• Beyond
  - Offline analysis
  - Local data support
    - Raster and Vector
  - 3D
Questions...
Next Session for Android API

Session Title: Implementing Analysis, Editing, and Offline Applications with ArcGIS Runtime SDK for Android
Event Type: Technical Session
Presenters: Dan ONeill, Will Crick
Date and Location: Wednesday, March 27, 2013, 4:00pm-5:00pm, Pasadena/Ventura/Sierra (Renaissance Hotel)