IBM

IBM Worklight V5.0.6
Getting Started

General information when developing for Android

Agenda

- Installation

- Development
  - Environment-specific APIs
  - Environment-specific images

- Testing
  - Debugging the app

- Deployment

Installation

See *Setting up your Android Development Environment* for a detailed explanation.

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Android development

- An Android app that is enabled for IBM Worklight® comprises the following components:
  - A Java™ main class that is provided by IBM Worklight, hosting an instance of the WebView component.
  - A set of Java and JavaScript™ libraries that provide access to various device features and capabilities.
  - The web application code that is provided by the developer, which is written in HTML, CSS, and JavaScript, running in one or more instances of the browser, hosted within the Main class.
  - All application components, including the web code the developer provides, packaged into a single Android project.
- IBM Worklight supports Android devices that run Android OS version 2.2 and higher.
- If you use a source control management system (for example, Rational Team Concert (RTC), GIT or Subversion), see the IBM Worklight user documentation for instructions on committing your source code to such systems.

Developing for different resolutions

- Various Android devices have different screen resolutions:
  - HTC Hero - 320x480
  - Nexus S, Nexus One– 480x800
  - Droid-X - 854x480

- By default, Android application assumes that the application HTML file was styled for a screen width of 320 pixels.

- When you are displaying graphical elements on wider screens, Android automatically scales images and fonts to the appropriate ratio.

- For example, on a 480-pixel wide screen, a 100-pixel wide image is scaled by 480/320 (= 1.5) to 150 pixels in width, and text that is displayed with an 18-pixel font is displayed at 24 pixels.

Developing for different resolutions

- By default, the `AndroidManifest.xml` files that are created by the Worklight Studio define that the application supports normal screens only:

```
<supports-screens
    android:smallScreens="false"
    android:normalScreens="true"
    android:largeScreens="false"
    android:resizeable="false"
    android:anyDensity="false"
    />
```

- To support tablets and newer Android devices, you must declare that the application also supports other types of screens.

- Ensure that you have added more sets of resources (icons, images, styling) for those screen types.

- You can find more information about supporting multiple screens in the "***Supporting multiple form factors using Worklight skins***" training module.

- Technical details about supporting multiple screens can be found at: http://developer.android.com

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Android options menu button

- Android devices have a dedicated button for displaying an app options menu.

- This options menu is invoked by pressing the device menu key.

- When displayed, the menu holds the first six menu items.

- If more than six items are added to the options menu, extra items can be accessed by pressing the More item in the options menu.

- Options menu development is covered in the "*Common UI Controls*" training module.
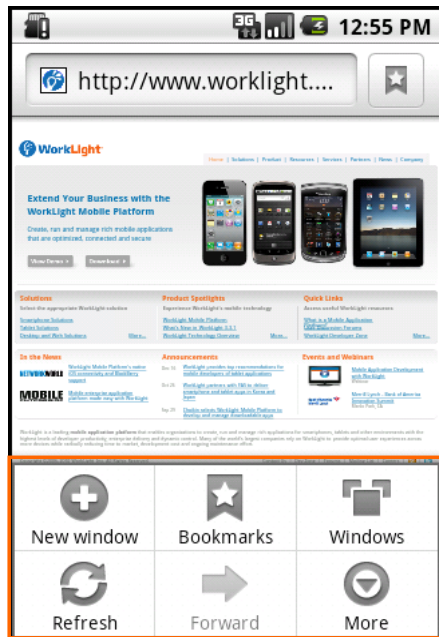
Android tab bars

- The tab bar navigation is one of the basic and most common principles of contemporary user interfaces.

- The Android tab bar is emulated by using HTML, CSS, and JavaScript, which makes it flexible and easy to customize.

- Each tab can have its own icon and invoke JavaScript functions.

- The Android tab bar is generated by using the Worklight JavaScript API.

- Tab bar development is covered in "*Common UI Controls*" training module.

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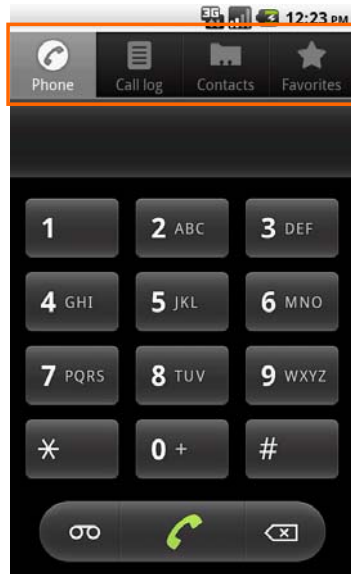
Using Apache Cordova

- The Apache Cordova framework can be used in Android applications to access the native elements of the device, such as contacts, geo-location services, media services, and accelerometer.

```
📧 🔒 ↔                    📶 🔋 1:49 AM
This information is gathered using Cordova
Javascript API

Device Name: SGH-I987
Device Cordova: 1.6.1
Device Platform: Android
Device UUID: ░░░░░░░░░
Device Version: 2.2
```

   Apache Cordova
   development is briefly covered
   in "*Apache Cordova overview*"
   training module
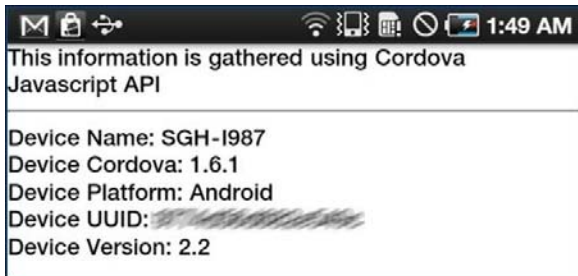
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Android Icons Sizes

- According to the Android UI development guidelines, the following icon sizes must be used in the options menu and tab bar.

Icon Type	Standard Asset Sizes (in Pixels), for Generalized Screen Densities		
	Low density screen *(ldpi)*	Medium density screen *(mdpi)*	High density screen *(hdpi)*
Launcher	36 x 36 px	48 x 48 px	72 x 72 px
Menu	36 x 36 px	48 x 48 px	72 x 72 px
Status Bar	24 x 24 px	32 x 32 px	48 x 48 px
Tab	24 x 24 px	32 x 32 px	48 x 48 px
Dialog	24 x 24 px	32 x 32 px	48 x 48 px
List View	24 x 24 px	32 x 32 px	48 x 48 px

Images

- Tab bar images - (48x48)
- Options menu images - (72x72)

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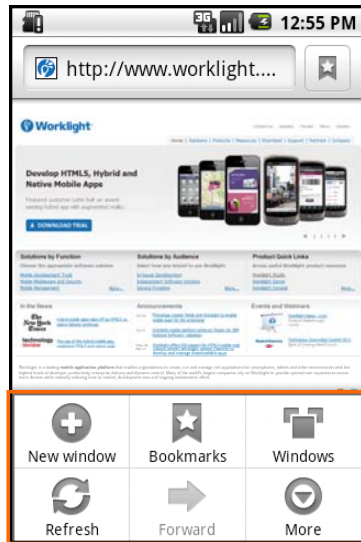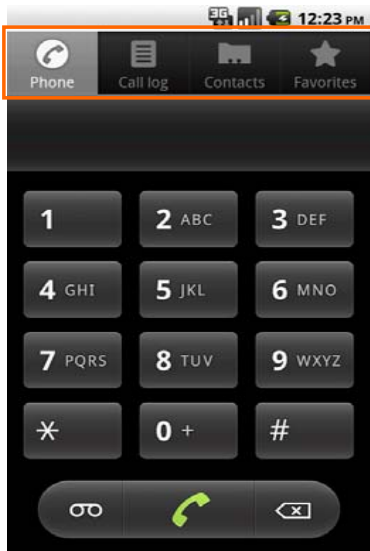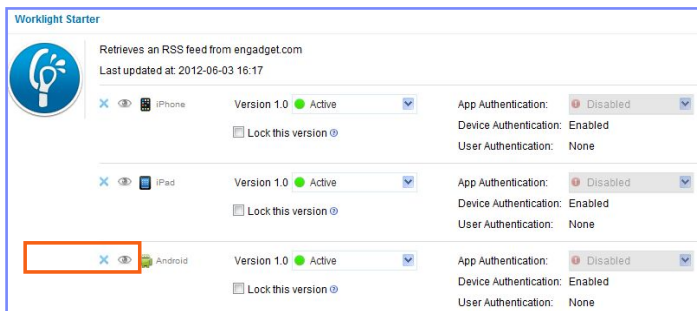## *Debugging the Application*

Phase 1 : Testing in your browser

- The Worklight Console previews the Android application in a web browser:

- You can debug the app by using the facilities of the browser, such as Firebug, Developer toolbar, and Console.

Debugging the Application

Phase 2: Testing in the Android simulator

- Preview your application on the Android simulator.

- Experience a more native feel of the application.

- Use Eclipse ADT LogCat view to debug your application by using the Android simulator.

Time		pid	tag	Message
01-03 15:26:43.285	D	2471	gps_BRCM	gps_inject_location: cal
01-03 15:26:47.464	D	2471	WifiService	releaseWifiLockLocked: W
01-03 15:26:52.507	D	3028	dalvikvm	GC_EXPLICIT freed 114 ob
01-03 15:26:57.535	D	2650	dalvikvm	GC_EXPLICIT freed 517 ob
01-03 15:27:03.484	I	2582	dhcpcd	renewing lease of 192.16
01-03 15:27:03.503	I	2582	dhcpcd	acknowledged 192.168.1.5
01-03 15:27:03.503	I	2582	dhcpcd	leased 192.168.1.58 for

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Debugging the Application

> **Phase 3: Testing on an Android Device**

- If your Android mobile device is connected to your development workstation, you can deploy the app on an Android device directly from Eclipse.

- You can use a LogCat to debug the application when you run it on the device.

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Deployment

- Android application deployment is done through Google Play:
  - Prepare your app for submission.
  - Upload your app to Google Play.
  - Manage apps on Google Play.

http://developer.android.com/guide/publishing/publishing.html

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