DISCLAIMER
Bleeding Edge Development
Adobe Flash
- Available on Android Phones Today
- Works in the Browser
- Limited Access to Device APIs

Adobe AIR
- In Pre-release Today
- Deploys as an Android Market Application
- Gives Full Access to Device APIs

Update: Now Available in the Android Market!
# Flash Tooling

<table>
<thead>
<tr>
<th>Tool Name</th>
<th>Description</th>
<th>Supports</th>
<th>Android Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe Flash CS5</td>
<td>Visual design tool for building Flash applications with some Actionscript.</td>
<td>Actionscript</td>
<td>Via Plug-in</td>
</tr>
<tr>
<td>Adobe Flash Builder 4</td>
<td>Professional Flex and Actionscript development environment.</td>
<td>Flex, Actionscript</td>
<td>Command Line Plug-in Available Later</td>
</tr>
<tr>
<td>Device Central</td>
<td>Device library and runtime emulation environment.</td>
<td>N/A</td>
<td>Downloaded Profiles</td>
</tr>
<tr>
<td>Flex 4 SDK</td>
<td>Stand-alone development toolkit.</td>
<td>Flex, Actionscript</td>
<td>Command Line</td>
</tr>
<tr>
<td>Adobe Flash Catalyst</td>
<td>Rapid Development Platform for building Flex user interfaces.</td>
<td>Flex, Actionscript</td>
<td>Not supported directly</td>
</tr>
</tbody>
</table>
Flash Professional CS5
import flash.system.Capabilities;
import flash.ui.Multitouch;

capabilityScroller.capabilities.text =
  "Manufacturer: " + Capabilities.manufacturer + "\n" +
  "OS: " + Capabilities.os + "\n" +
  "Pixel Aspect Ratio: " + Capabilities.pixelAspectRatio + "\n" +
  "Player Type: " + Capabilities.playerType + "\n" +
  "Screen Color: " + Capabilities.screenColor + "\n" +
  "Screen DPI: " + Capabilities.screenDPI + "\n" +
  "Screen Resolution: " + Capabilities.screenResolutionX + "x" +
    Capabilities.screenResolutionY + "\n" +
  "Touch Screen Type: " + Capabilities.touchscreenType + "\n" +
  "Version: " + Capabilities.version + "\n" +
  "Supports Gesture Events: " + Multitouch.supportsGestureEvents + "\n" +
  "Supports Touch Events: " + Multitouch.supportsTouchEvents + "\n" +
  "Input Mode: " + Multitouch.inputMode + "\n" +
  "Max Touch Points: " + Multitouch.maxTouchPoints + "\n" +
  "Supported Gestures: " + Multitouch.supportedGestures;
Flash Professional CS5

Application & Installer Settings

- Output file: FlashCapabilityReporter.apk
- App name: FlashCapabilityReporter
- App ID: com.proandroidflash.flashcapabilityreporter
- Version: 1.0.0
- Aspect ratio: Portrait
- Included files: FlashCapabilityReporter.swf, FlashCapabilityReporter-app.xml

Buttons: OK, Cancel, Publish, Help
Flash Capability Reporter

Has Accessibility: true
Has Audio: true
Has Audio Encoder: true
Has Embedded Video: true
Has MP3: true
Has Printing: true
Has Screen Broadcast: false
Has Screen Playback: false
Has Streaming Audio: true
Has Video Encoder: true
Is Debugger: true
Language: en
Local File Read Disable: false
Manufacturer: Adobe Windows
OS: Windows 7
Pixel Aspect Ratio: 1
Player Type: Desktop
Screen Color: color
Android Devices
# Device Screen Characteristics

<table>
<thead>
<tr>
<th>Device Name</th>
<th>Manufacturer</th>
<th>Resolution</th>
<th>Size</th>
<th>Density</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Mobile G1</td>
<td>HTC</td>
<td>320x480</td>
<td>3.2”</td>
<td>180ppi</td>
<td>HVGA</td>
</tr>
<tr>
<td>HTC Hero</td>
<td>HTC</td>
<td>320x480</td>
<td>3.2”</td>
<td>180ppi</td>
<td>HVGA</td>
</tr>
<tr>
<td>Motorola Droid</td>
<td>Motorola</td>
<td>480x854</td>
<td>3.7”</td>
<td>265ppi</td>
<td>FWVGA</td>
</tr>
<tr>
<td>Google Nexus One</td>
<td>HTC</td>
<td>480x800</td>
<td>3.7”</td>
<td>252ppi</td>
<td>WVGA</td>
</tr>
<tr>
<td>Xperia X10 Mini</td>
<td>Sony Ericsson</td>
<td>240x320</td>
<td>2.55”</td>
<td>157ppi</td>
<td>QVGA</td>
</tr>
<tr>
<td>Xperia X10</td>
<td>Sony Ericsson</td>
<td>480x854</td>
<td>4”</td>
<td>245ppi</td>
<td>WVGA</td>
</tr>
<tr>
<td>HTC Evo 4G</td>
<td>HTC</td>
<td>480x800</td>
<td>4.3”</td>
<td>217ppi</td>
<td>WVGA</td>
</tr>
<tr>
<td>Droid X</td>
<td>Motorola</td>
<td>480x854</td>
<td>4.3”</td>
<td>?</td>
<td>FWVGA</td>
</tr>
</tbody>
</table>
Screen Resolution vs. Density

**Screen Resolution**
- Google Nexus 1
- HTC Hero
- Xperia Mini X10

**Physical Device Size**
- Google Nexus 1: 3.7”
- HTC Hero: 3.2”
- Xperia Mini X10: 2.55”

**Physical Thumb Size**
Flash/AIR Mobile APIs

- Screen Orientation *
- Multitouch *
- Gestures
- Accelerometer
- Camera
- GPS

* APIs we will show examples of today
Screen Orientation

- Stage Event Listener
  - `stage.addEventListener(
    StageOrientationEvent.ORIENTATION_CHANGE,
    <function callback>);`

- StageOrientation Values
  - DEFAULT
  - ROTATED_LEFT
  - ROTATED_RIGHT
  - UPSIDE_DOWN
  - UNKNOWN
import flash.display.StageOrientation;
import flash.events.StageOrientationEvent;

stop();

stage.addEventListener(
    StageOrientationEvent.ORIENTATION_CHANGE, onChanged);

function onChanged(event:StageOrientationEvent):void {
    play();
}
Portrait/Landscape Switching
Portrait/Landscape Switching
Mulititouch

GESTURES

Two Finger Tap

Press and Tap

Pan

Rotate

Swipe

Zoom

Illustrations provided by Gestureworks (www.gestureworks.com)
package com.proandroidflash {
    import flash.events.TransformGestureEvent;
    import flash.ui.Multitouch;
    import flash.ui.MultitouchInputMode;

    import mx.controls.Image;

    public class MultiTouchImage extends Image {
        public function MultiTouchImage() {
            addEventListener(TransformGestureEvent.GESTURE_ROTATE, rotateListener);
            addEventListener(TransformGestureEvent.GESTURE_ZOOM, zoomListener);
            Multitouch.inputMode = MultitouchInputMode.GESTURE;
        }

        public function rotateListener(e:TransformGestureEvent):void {
            rotation += e.rotation;
        }

        public function zoomListener(e:TransformGestureEvent):void {
            scaleX *= e.scaleX;
            scaleY *= e.scaleY;
        }
    }
}
<?xml version="1.0" encoding="utf-8"?>
xmlns:s="library://ns.adobe.com/flex/spark"
xmlns:mx="library://ns.adobe.com/flex/mx"
xmlns:proandroidflash="com.proandroidflash.*"
backgroundColor="#333333">
<s:layout>
<s:VerticalLayout horizontalAlign="center" paddingTop="10" paddingLeft="10" paddingRight="10"
paddingBottom="10"/>
</s:layout>
<fx:Declarations>
<fx:Array id="images">
<fx:Object>
[@Embed(source='images/cassandra1.jpg')]
</fx:Object>
</fx:Array>
</fx:Declarations>
<s:Label text="Android Scrapbook" fontSize="32" color="white"/>
<s:Label text="Drag, Rotate, and Zoom with your fingers." fontSize="14" color="#aaaaaa"/>
<s:BorderContainer backgroundColor="#cccccc" borderColor="#555555" rotation="5" width="110%" height="110%">
<s:filters>
<s:DropShadowFilter alpha="0.5"/>
</s:filters>
<proandroidflash:MultiTouchImage source="@Embed(source='images/cassandra1.jpg')" y="20" x="10"
width="350" rotation="-3"/>
<proandroidflash:MultiTouchImage source="@Embed(source='images/cassandra2.jpg')" y="200" x="40"
width="350" rotation="13"/>
<proandroidflash:MultiTouchImage source="@Embed(source='images/cassandra3.jpg')" y="460" x="5"
width="350" rotation="-8"/>
</s:BorderContainer>
</s:Application>
### AIR APIs not on Mobile (1 of 2)

<table>
<thead>
<tr>
<th>API Name</th>
<th>Property to Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility</td>
<td>Capabilities.hasAccessibility</td>
</tr>
<tr>
<td>DatagramSocket</td>
<td>DatagramSocket.isSupported</td>
</tr>
<tr>
<td>DNSResolver</td>
<td>DNSResolver.isSupported</td>
</tr>
<tr>
<td>DockIcon</td>
<td>NativeApplication.supportsDockIcon</td>
</tr>
<tr>
<td>DRMMManager</td>
<td>DRMMManager.isSupported</td>
</tr>
<tr>
<td>EncryptedLocalStore</td>
<td>EncryptedLocalStore.isSupported</td>
</tr>
<tr>
<td>HTMLLoader</td>
<td>HTMLLoader.isSupported</td>
</tr>
<tr>
<td>LocalConnection</td>
<td>LocalConnection.isSupported</td>
</tr>
<tr>
<td>NativeApplication.exit()</td>
<td>--</td>
</tr>
<tr>
<td>NativeApplication.menu</td>
<td>NativeApplication.supportsMenu</td>
</tr>
<tr>
<td>NativeApplication.isSetAsDefaultApplication()</td>
<td>NativeApplication.supportsDefaultApplication</td>
</tr>
<tr>
<td>NativeApplication.startAtLogin</td>
<td>NativeApplication.supportsStartAtLogin</td>
</tr>
</tbody>
</table>
## AIR APIs not on Mobile (2 of 2)

<table>
<thead>
<tr>
<th>API Name</th>
<th>Property to Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>NativeMenu</td>
<td>NativeMenu.isSupported</td>
</tr>
<tr>
<td>NativeProcess</td>
<td>NativeProcess.isSupported</td>
</tr>
<tr>
<td>NativeWindow</td>
<td>NativeWindow.isSupported</td>
</tr>
<tr>
<td>NativeWindow.notifyUser()</td>
<td>NativeWindow.supportsNotification</td>
</tr>
<tr>
<td>NetworkInfo</td>
<td>NetworkInfo.isSupported</td>
</tr>
<tr>
<td>PDF support</td>
<td>HTMLLoader.pdfCapability</td>
</tr>
<tr>
<td>PrintJob</td>
<td>PrintJob.isSupported</td>
</tr>
<tr>
<td>SecureSocket</td>
<td>SecureSocket.isSupported</td>
</tr>
<tr>
<td>ServerSocket</td>
<td>ServerSocket.isSupported</td>
</tr>
<tr>
<td>Shader</td>
<td>--</td>
</tr>
<tr>
<td>ShaderFilter</td>
<td>--</td>
</tr>
<tr>
<td>StorageVolumeInfo</td>
<td>StorageVolumeInfo.isSupported</td>
</tr>
<tr>
<td>XMLSignatureValidator</td>
<td>XMLSignatureValidator.isSupported</td>
</tr>
</tbody>
</table>
Flex Mobile - Hero
Coming 2011

- MobileApplication
- Views
- ViewNavigator
- Splash Screen
- Components:
  - ActionBar
  - Text Components
  - List, Scroller, and Touch Gestures

For more info see: http://opensource.adobe.com/wiki/display/flexsdk/Hero
Future Device Support

- Android Tablets
- iPhone/iPad
- Television
SDK Links

- Android SDK (2.2 or later)
- AIR Prerelease
- Flex Mobile (Hero)
Blogs to Read

- James Ward
  - http://www.jamesward.com/
- Christian Cantrell
- Christophe Coenraets
  - http://coenraets.org/blog/
- Serge Jespers
- Lee Brimelow (The Flash Blog)
  - http://blog.theflashblog.com/
- Mark Doherty (FlashMobileBlog)
  - http://www.flashmobileblog.com/
Local Meetups

- San Flashcisco
- BAADUG
- SilvaFUG
- SilvaFUG presents Flash On…
  - Flash Gaming on Android
  - Stephen Chin and James Young
  - November 9th (SF) and 11th (SJ)
Pro Android Flash
Stephen Chin, Oswald Campesato, and Dean Iverson

Will Include:
- UI Controls
- Media Support
- Mobile Flex APIs
- Android Market Deployment
- Extensive Examples

Coming in April 2011