



Android: As seen on TV!

Bring your app to the big screen

Christian Kurzke
Developer Advocate







Full Size Android



TV도 ~♪
U+ style



TV의 새로운 진리
U+tv G

Google TV 

Open for Business!



10+ Manufacturers World Wide
Are Building Android Devices With Google TV





Easy to Create
Easy to Distribute

MOVIES

GAMES

Category
Featured

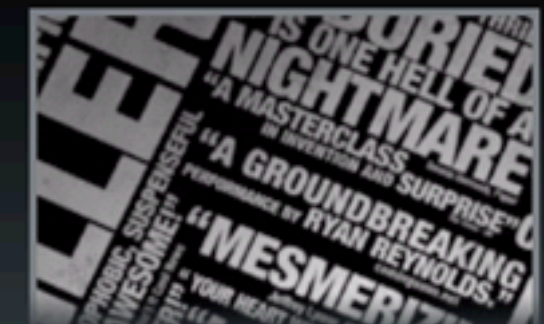
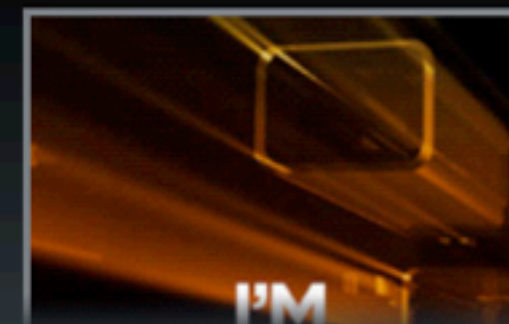
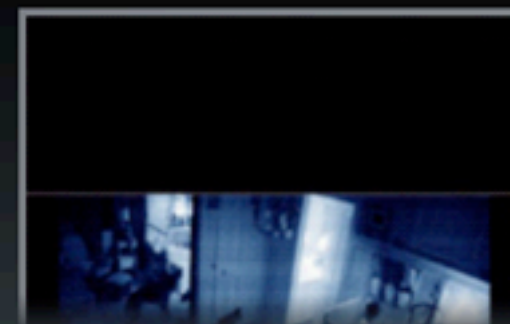
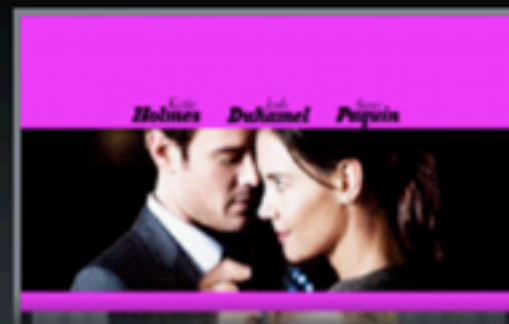
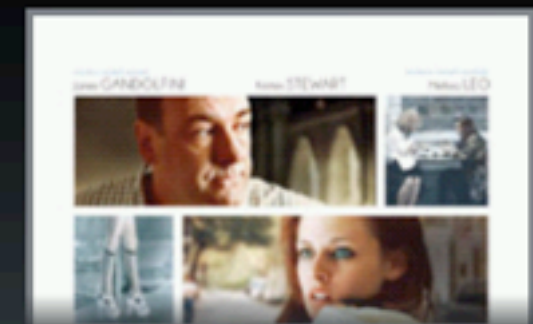
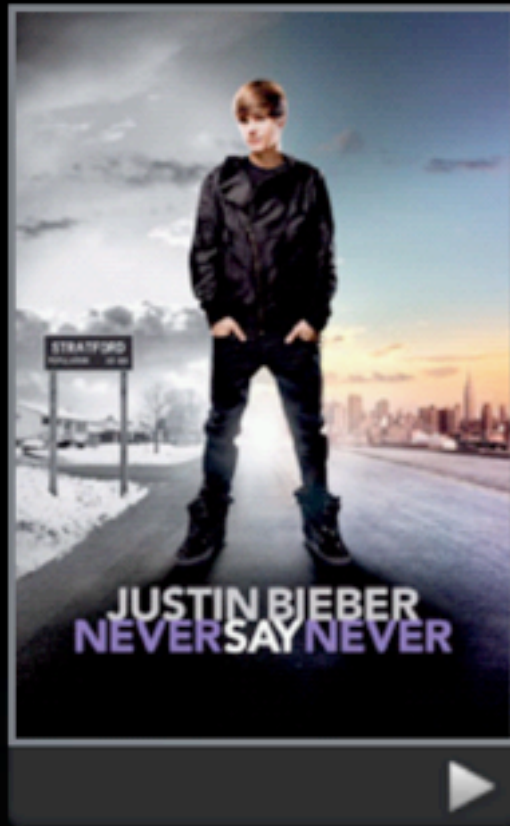
All

Subscription

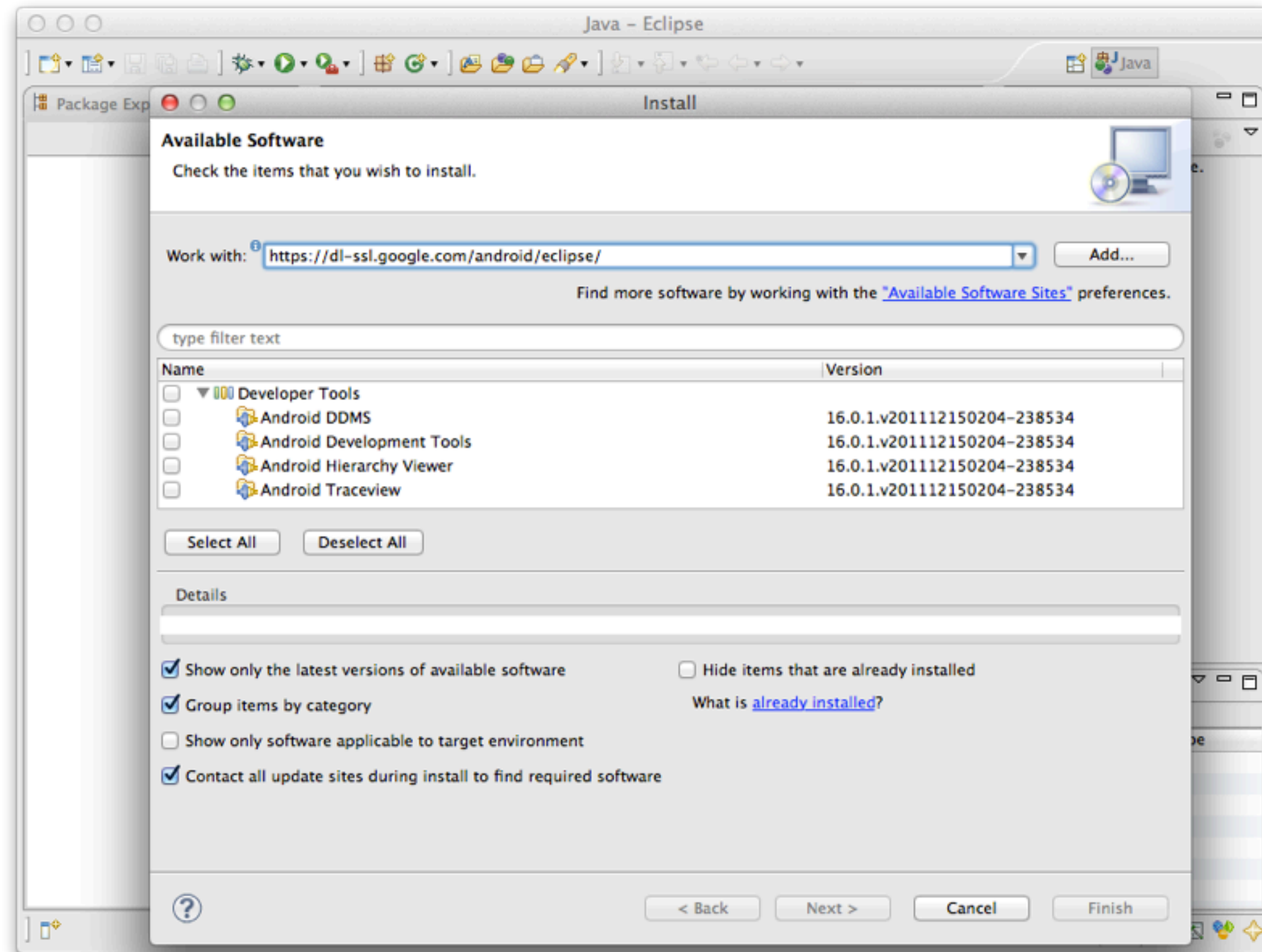
At Kiosk

Rent / Buy

Filter



Pure Android - No "Special SDK Needed"



Most Important "Feature" Of Any TV



The ORIGINAL Remote



Android DPAD Support



Most Important “Feature” Of Any TV App

```
<uses-feature  
  android:name="android.hardware.touchscreen"  
  android:required="false" />
```





Package Explorer

- drawable-xxhdpi
- layout
 - activity_fragment_
 - activity_main.xml
 - activity_query_you
 - activity_record_up
 - activity_simple_pla
 - activity_test.xml
 - activity_thumbnail
- layout-land
- layout-land-hdpi-no
- activity_tv.xml
- layout-notouch
- menu
- values
 - dimens.xml
 - integers.xml
 - strings.xml
 - styles.xml
- values-sw600dp
- values-sw720dp-lan
- values-v11
- values-v14
 - styles.xml

AndroidManifest.xml

ic_launcher-web.png

proguard-project.txt

project.properties

activity_test.xml | styles.xml | styles.xml | *MainActivity Manife

Android Manifest

Manifest General Attributes

Defines general information about the AndroidManifest.xml

Package:

Version code:

Version name:

Shared user id:

Shared user label:

Install location:

Manifest Extras

- android.hardware.camera (Uses I)
- android.hardware.touchscreen (U)

Attributes for android.hardware.touchscreen (Uses Feature)

The `uses-feature` tag specifies a specific feature used by the application.

GL ES version:

Native library:

Required:

Manifest Editor

```

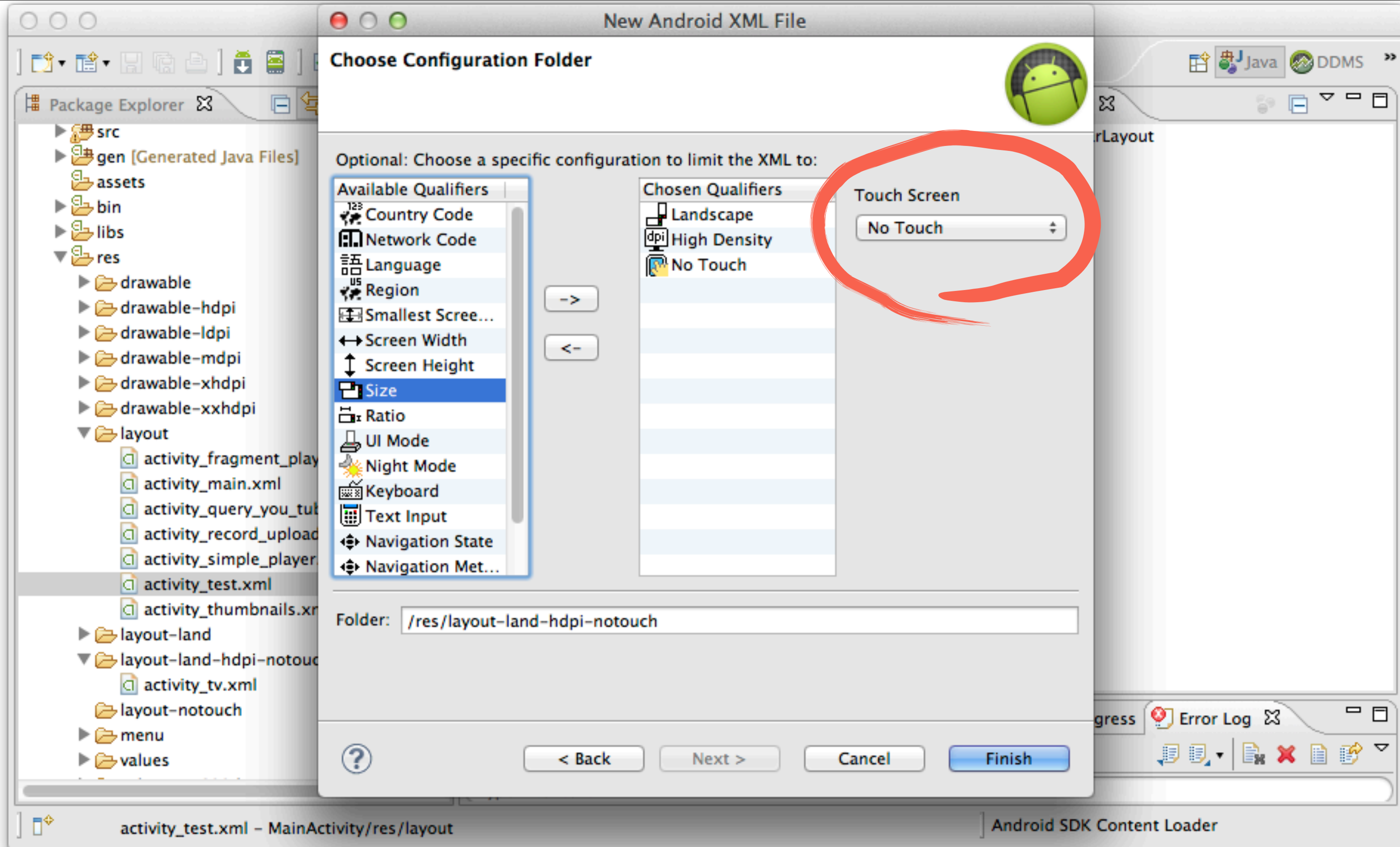
<?xml
<manifest
  <uses-sdk
  <uses-permis
  <uses-feature
  <uses-feature
  <application:
  
```

Manifest | Application | Permissions | Instrumentation | AndroidManifest.xml

Problems | Javadoc | Declaration | Console | Properties | Progress | Error Log

Workspace Log

type filter text



Choose Configuration Folder

Optional: Choose a specific configuration to limit the XML to:

Available Qualifiers

- Country Code
- Network Code
- Language
- Region
- Smallest Scree...
- Screen Width
- Screen Height
- Size**
- Ratio
- UI Mode
- Night Mode
- Keyboard
- Text Input
- Navigation State
- Navigation Met...

Chosen Qualifiers

- Landscape
- High Density
- No Touch

Touch Screen

No Touch

Folder: /res/layout-land-hdpi-notouch

< Back Next > Cancel Finish

SCHEDULE







TUESDAY, MAY 14	
2:00PM	On-site check-in Level 1
WEDNESDAY, MAY 15	
7:00AM	Breakfast Level 1
7:00AM	On-site check-in Level 1
9:00AM	Keynote Level 3 LIVE
noon	Browse sessions... Empty slot

1 day, 16:28:49
until Google I/O

EXPLORE

MAP

(All tracks)

- Android 
- Chrome & Apps 
- Google+ 
- Google Cloud Platform 
- Google Maps 
- YouTube 

STREAM



Uwe...
1 min ago

:-)

Originally shared by Hangout Toolbox
Google I/O is getting closer...
...and so does our beta release of Hangout Toolbox version 2!...



05-15-2013

+1



...

YouTube

Learn about rich video integration with the YouTube APIs, and how to launch and market your services on the YouTube platform

YouTube for Developers: The Future and the Opportunities
 noon – 1:00PM, Wed in Room 3

Ad hoc YouTube Analytics with Google Apps Script
 1:40PM – 2:20PM, Wed in Room 3

Semantic Video Annotations in the YouTube Topics API: Theory and Applications
 2:35PM – 3:15PM, Wed in Room 3

Mobile Development With YouTube APIs: Best Practices
 3:30PM – 4:10PM, Wed in Room 3

Code Lab: YouTube anywhere - using the YouTube API on phones, tablets and

16
 +1

11:15AM – 1:15PM, Fri in Room 3

YouTube Android Player API allows you to integrate a high quality video playback experience into your application. Learn how to YouTube-enable your app in 120 minutes.

[+](#) **Schedule**

[MORE](#)

Web link

SPEAKERS



Kristan Uccello

Developer Programs Engineer for Google TV, avid paintball-er, snowboarder, occasional privateer, passionate technologist and all around excited geek. Kristan 'Krispy' Uccello has worked in the industry for over fourteen years for big and small companies (even started a few). Right now he is helping other trailblazing developers to realize their goals on Google TV from the Google offices in Mountain



The Basics

Adult Contemporary



Live



Browse



Favorites



Search



Settings



Now Playing

I Come from the Mour

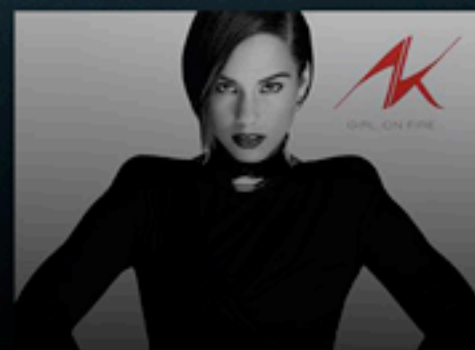
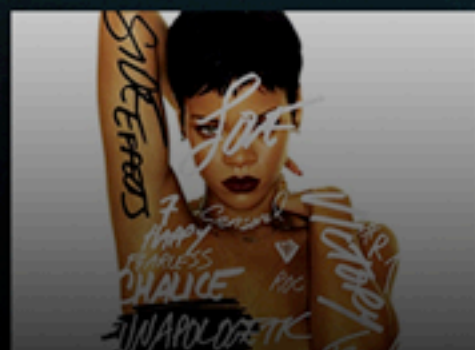
Thee Oh Shees

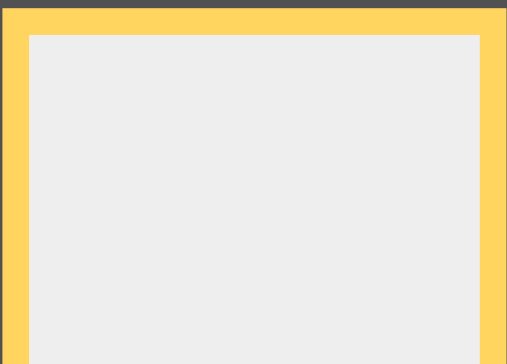
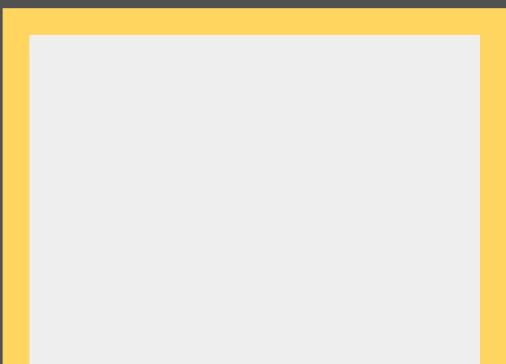
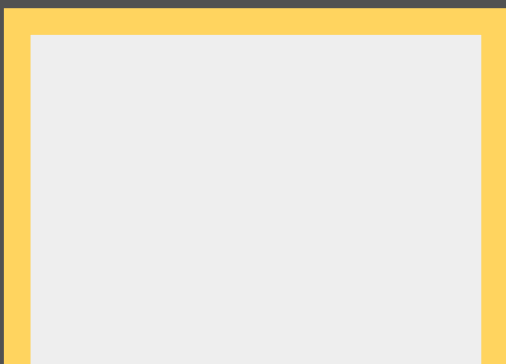
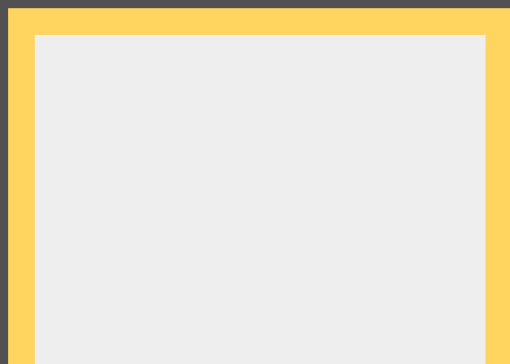
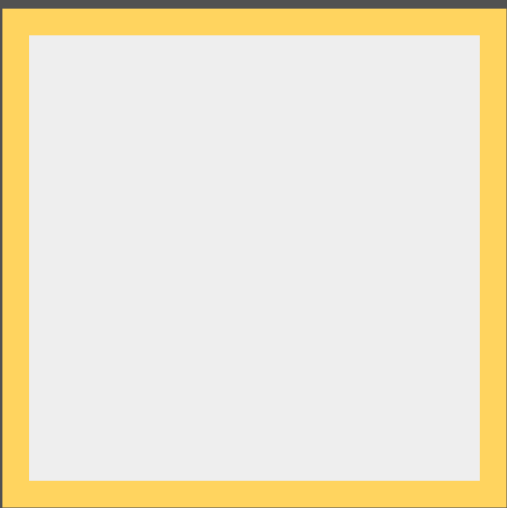
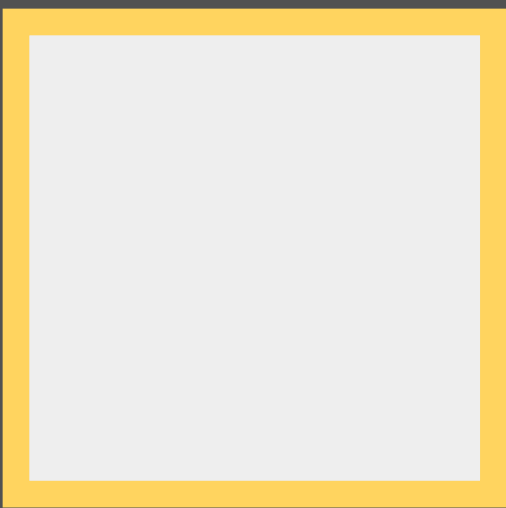
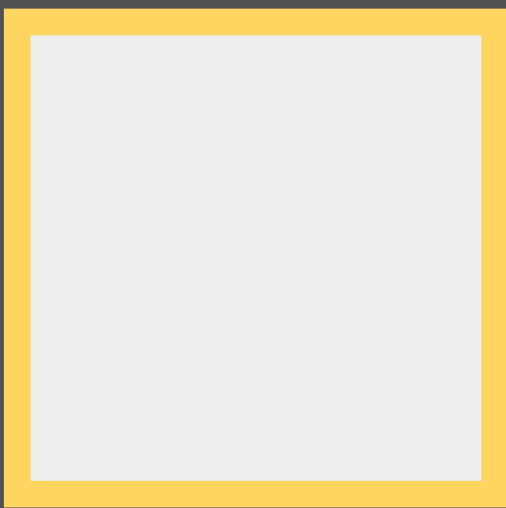
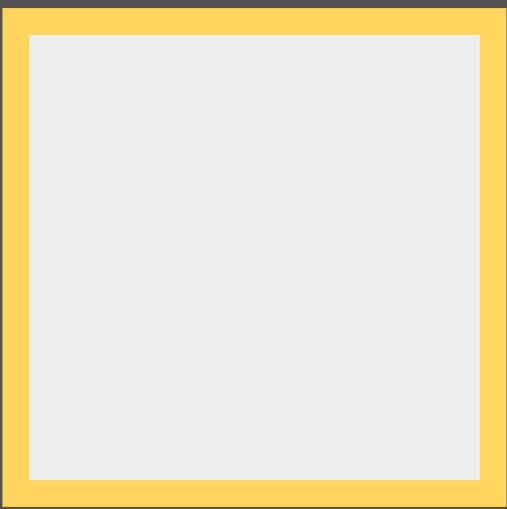
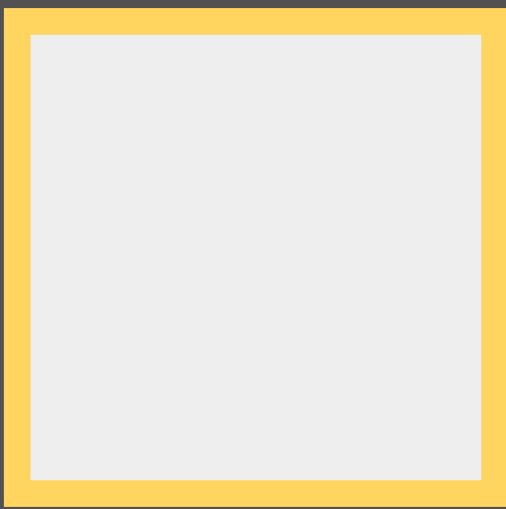
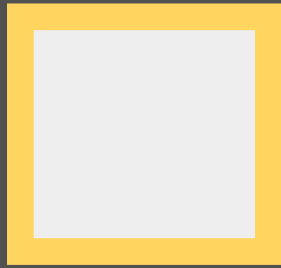
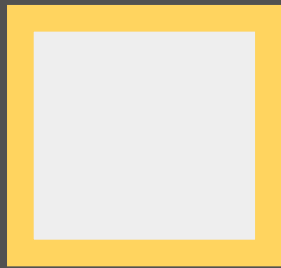
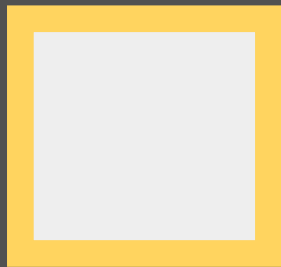
KEXP 90.3FM

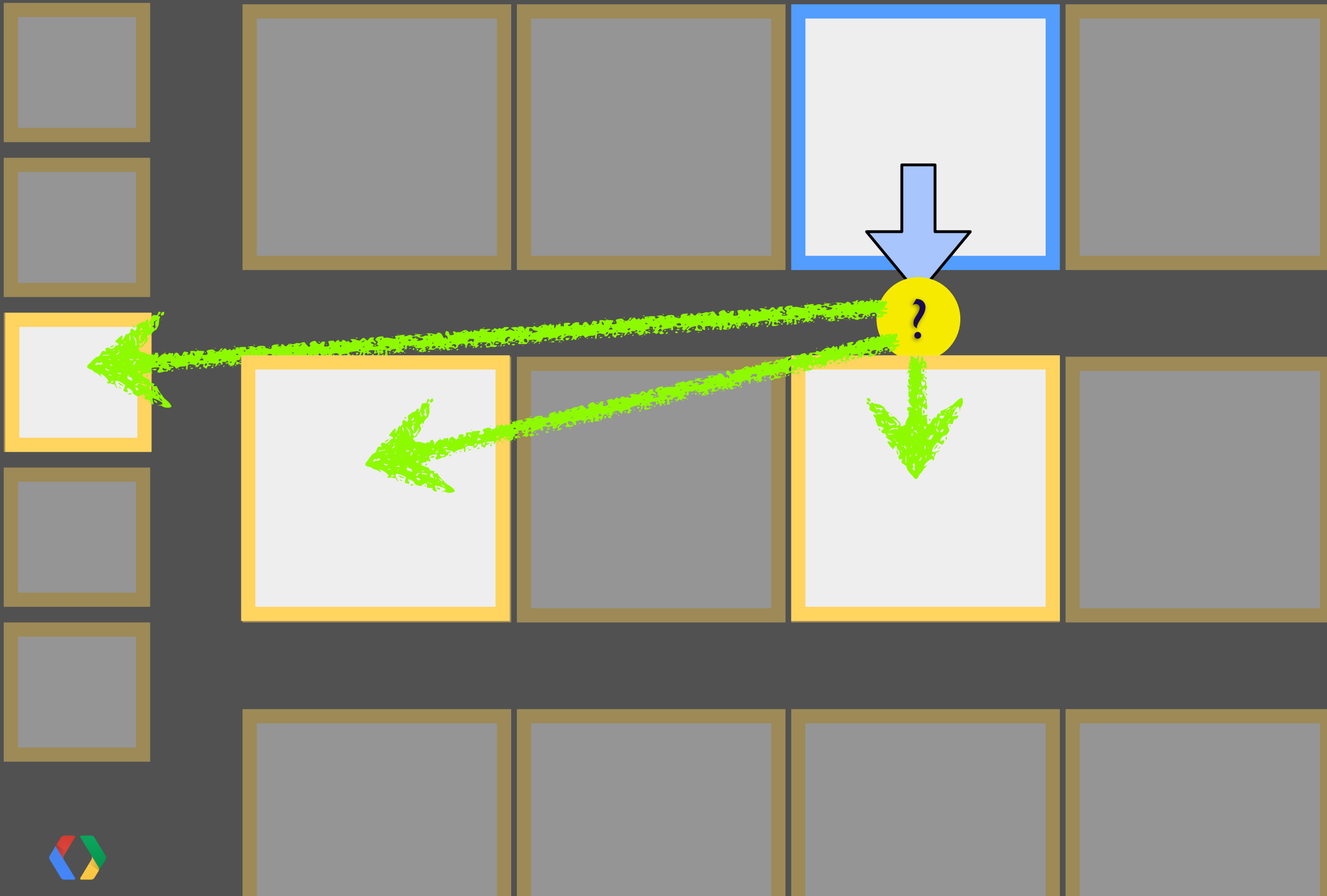
Electronic and Dance



Top 40/Pop







Android Focus handling

Make a conscious decision where to place “**default**” focus to minimize key presses!

Request default focus for element

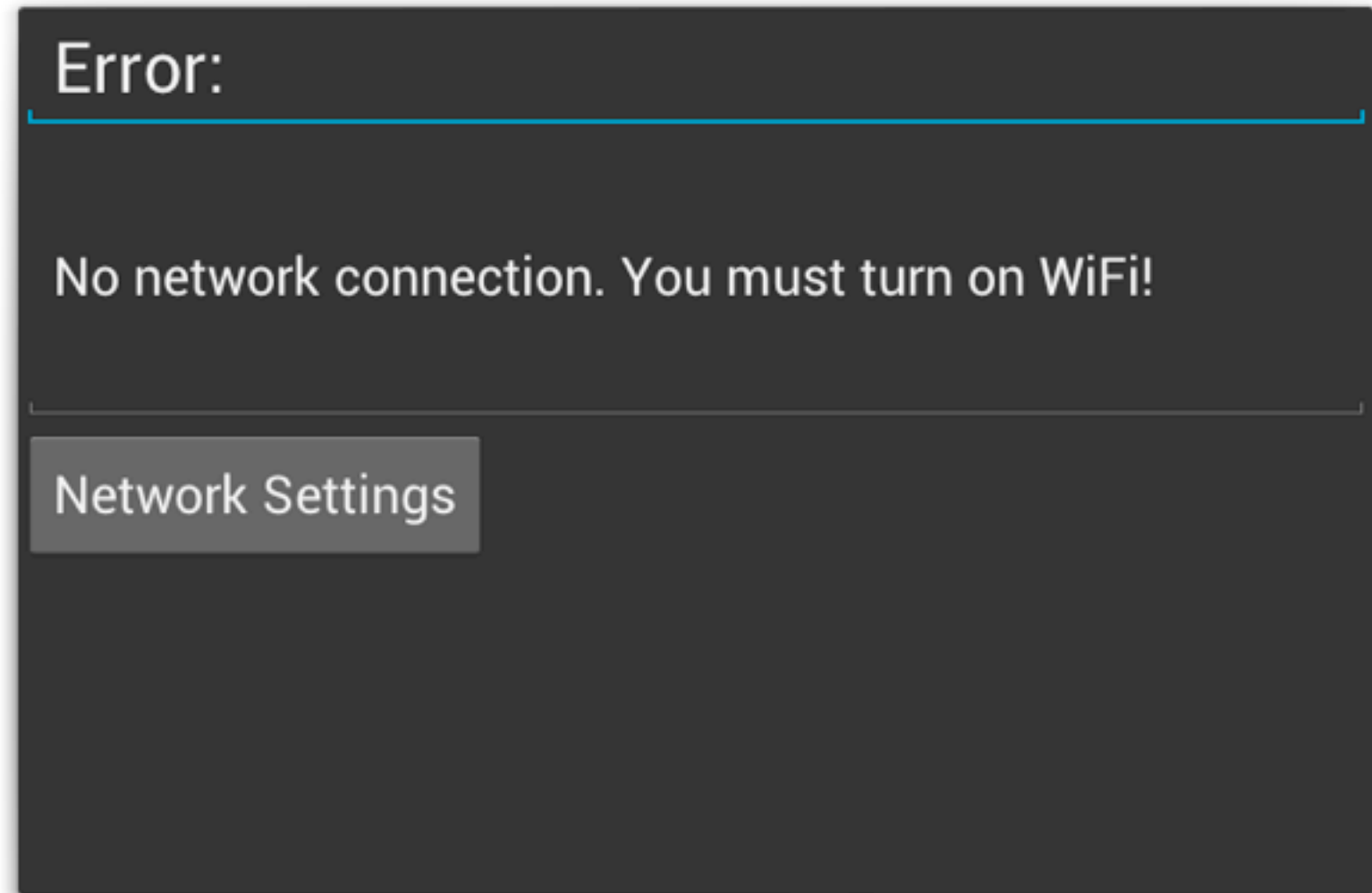
- **`View.requestFocus()`**
- **`<requestFocus>`**

Explicit control of focus sequence

- **`android:nextFocusDown`**
- **`android:nextFocusLeft`**
- **`android:nextFocusRight`**
- **`android:nextFocusUp`**
- **`android:nextFocusForward [tab]`**



Remember Your Ethernet



```
NetworkInfo.getType() == ConnectivityManager.TYPE_WIFI
```

On Google TV, there is also

```
NetworkInfo.getType() == ConnectivityManager.TYPE_ETHERNET
```



CATEGORIES

FEATURED

TOP FREE

THE WALL STREET JOURNAL
WSJ Live
 Watch The Wall Street Journal Everywhere

 Music
 Listen instantly, anywhere.
 Google play

viki:
 Global TV



Games



 PostTV



Brought to you by The Washington Post

Staff Picks




Panoramio

 **Flixster**

FULL-LENGTH GIFT MOVIE INCLUDED

REDU
 New TV



Know your “Android Features”

- Use the “AAPT” tool to verify all your Manifest tags.
- Displays Features, Permissions, etc. “as seen” by Market!

```
#> aapt dump badging MyApplication.apk
package: name='com.mydomain.greatapp' targetSdkVersion:'12'
uses-feature-not-required: 'android.hardware.touchscreen'
uses-feature: 'android.hardware.wifi'

uses-permission: 'android.permission.INTERNET'
uses-permission: 'android.permission.ACCESS_WIFI_STATE'
```



Upload to Play Store

- Include 16:9 screenshots
- Feature Graphics
- “Real” Email Address
- **Let us know! (+Google TV)**



Google play

ANDROID DEVELOPER CONSOLE





From Good to Great

Using the Latest and Greatest

Introducing ...



The NEW Google TV Platform

Google TV (today)



Google TV (Soon!)



Android API

Honeycomb API Level 13

Jellybean 4.2.2 API Level 17

Media Delivery

Browser

NDK

The NEW Google TV Platform

Google TV (today)



Google TV (Soon!)



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Jellybean 4.2.2 API Level 17

Media Delivery

Adaptive Bitrate Streaming of BluRay HD quality content using Widevine, Play Ready, HLS, Smooth Streaming and Media Source APIs

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NDK

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Chrome 11

Chrome 28 with EME and MSE

NDK

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Google TV (Soon!)



Android API

Honeycomb API Level 13

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Media Delivery

Adaptive Bitrate Streaming of BluRay HD quality content using Widevine, Play Ready, HLS, Smooth Streaming and Media Source APIs

Browser

Chrome 11

Chrome 28 with EME and MSE

NDK

NDK, ARM ABI

ASPHALT HEAT 7





Additional APIs for TV

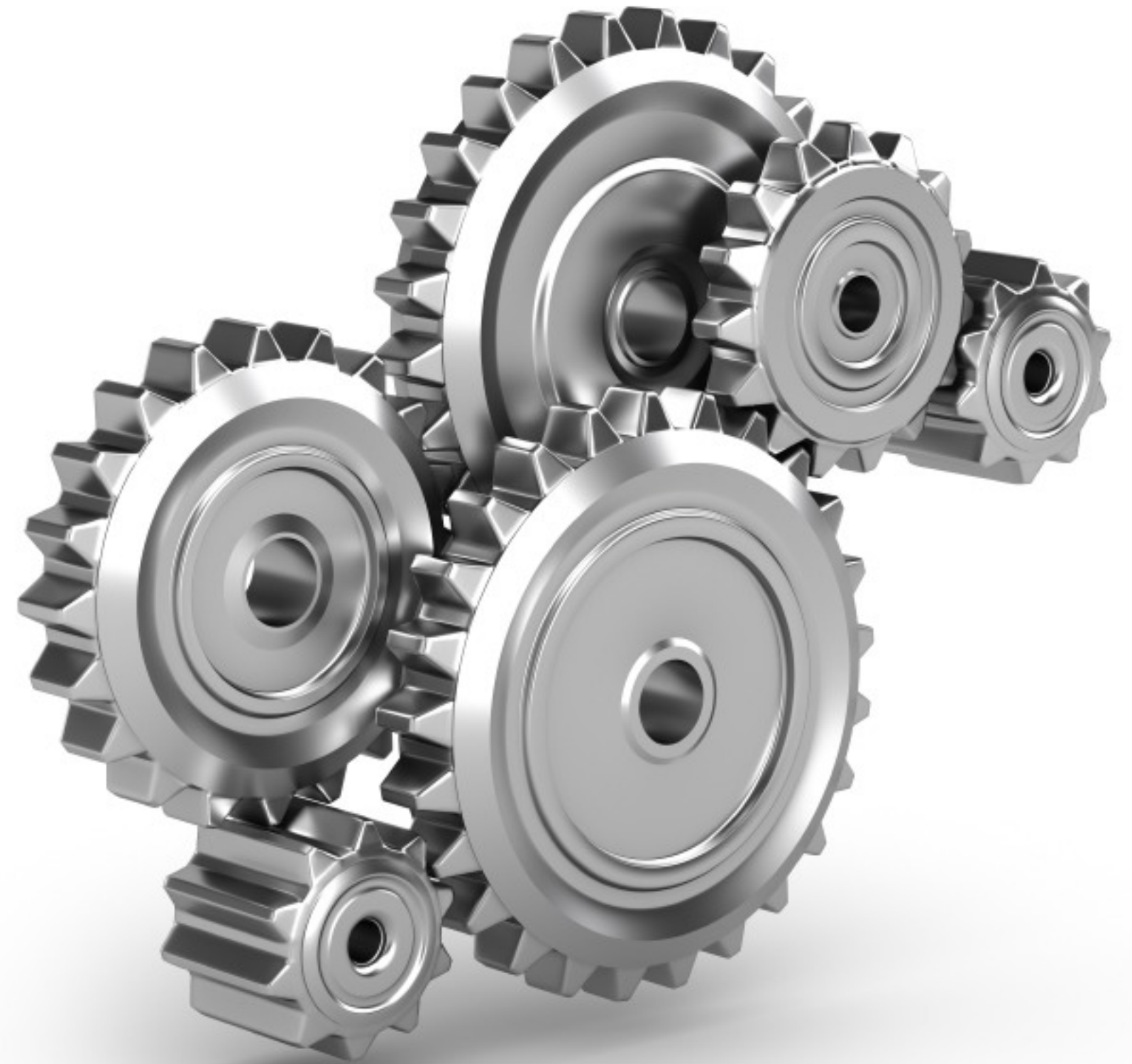
Additional APIs in Detail

Android API level

GtvMediaPlayer

Latest Chrome Version

And more



New Android APIs

Android API level

- API 17 (Jelly Bean)
- Default system theme change, Action Bar, etc.
- Some Permission defaults changed
 - e.g.: No permission to write APN settings:
Neither user nor current process has android.permission.WRITE_APN_SETTINGS.

Include Google TV specific API Library

- Use **com.google.android.tv.v2.jar** library
- Set AndroidManifest.xml

```
<uses-library android:name="com.google.android.tv.v2" />
```



GtvMediaPlayer extends android.media.MediaPlayer

Highlights

setLowLatencyMode(boolean lowLatencyMode)

- Minimize internal buffers in native player and HW decoder
- Low Latency Streaming Cloud Games

setMinMediaBitrateForAbr(int kbps)

- Improves ABR Streaming experience

Close Captioning / QoS

- Extended support for additional Streaming Protocols, HLS, local file



TV Specific APIs

- **Supports** many different **Streaming** Protocols
 - HTTP Live Streaming, Smooth Streaming
 - Quality of Service analytics
 - Open API to implement your own Protocol (Media Source API)
- **Compatible** with Industry **Standard DRM** Solutions Trusted Video Path
 - Widevine and PlayReady
 - HTML5 Encrypted Media Extensions (EME)
- **Integrates** with devices in your living room (and in the cloud)
 - Media Devices API
- **YouTube** Hosting
 - Full control of the player, embedded, full screen
 - Extensive APIs for Playlist control
 - Integrated monetization



Chrome TV Enhancements

- Latest version of Chrome on Android, Version 28 or later
- Full Screen mode
- HTML5 Encrypted Media Extensions (EME)
- Media Source Extension for custom Streaming Protocols



Creating High Quality Streaming Video Apps



Coming Soon!



Your App - On TV!

Stay in touch

+Google TV Developers

<https://developers.google.com/tv>

<https://google.com/+ChristianKurzke>



Google TV™
[//Developers](https://developers.google.com/tv)



