



ANDROID



What is an OS?



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APPLICATIONS

Home

Contacts

Phone

Browser

...

APPLICATION FRAMEWORK

Activity Manager

Window
Manager

Content
Providers

View
System

Package Manager

Telephony
Manager

Resource
Manager

Location
Manager

Notification
Manager

LIBRARIES

Surface Manager

Media
Framework

SQLite

OpenGL | ES

FreeType

WebKit

SGL

SSL

libc

ANDROID RUNTIME

Core Libraries

Dalvik Virtual
Machine

LINUX KERNEL

Display
Driver

Camera Driver

Flash Memory
Driver

Binder (IPC)
Driver

Keypad Driver

WiFi Driver

Audio
Drivers

Power
Management

Table of Contents

1. Processor
2. Memory
3. Software
4. Input / Output

Thread Scheduling

```
new Thread(new Runnable() {  
    @Override  
    public void run() {  
        Process.setThreadPriority(Process.THREAD_PRIORITY_BACKGROUND);  
  
        // ...  
    }  
}).start();
```

Scheduling tasks via the AlarmManager System Service

```
Calendar cal = Calendar.getInstance();
```

```
Intent intent = new Intent(this, MyService.class);
```

```
PendingIntent pintent = PendingIntent.getService(this, 0,  
intent, 0);
```

```
AlarmManager alarm = (AlarmManager)  
getSystemService(Context.ALARM_SERVICE);  
// schedule for every 30 seconds  
alarm.setRepeating(AlarmManager.RTC_WAKEUP,  
cal.getTimeInMillis(), 30*1000, pintent);
```

2. Memory / Hardware

1. Memory management
2. RAM
3. Cache
4. Network chip
5. MicroSD
6. Power Supply

Battery



From - <http://www.creatix.com/tech/interesting/advantages-of-rooting-android-phone/1469/>

Memory / Hardware - Code

```
MemoryInfo mi = new MemoryInfo();  
ActivityManager activityManager = (ActivityManager)  
    getSystemService(ACTIVITY_SERVICE);  
activityManager.getMemoryInfo(mi);  
long availableMegs = mi.availMem / 1048576L;  
  
//Percentage can be calculated for API 16+:  
    long percentAvail = mi.availMem / mi.totalMem;
```

3. Software

1. Security
2. Error / warning messages
3. CRUD of methods
4. Drivers
5. Resolution Compatibility
6. Version history

Android Version History



Android 1.5 Cupcake



Android 1.6 Donut



Android 2.0 Eclair



Android 2.2 Froyo



Android 2.3 Gingerbread



Android 3.0 Honeycomb



Android 4.0
Ice Cream Sandwich



Android 4.1 Jelly Bean



Android 4.4 KitKat



Android 5.0 Lollipop

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5. Input / Output

1. Camera / Audio
2. GPS
3. Peripherals
4. Sensors
5. Touchscreen
6. Vibrations

Android Vibrations



From - <http://bit.ly/1WgEGVT>



From - <http://bit.ly/1YUp2xo>

Code for Creating Touchscreen Event

```
public boolean onTouchEvent(MotionEvent e) {  
    // get touchX and touchY  
    switch (e.getAction()) {  
        // .... other cases ...  
        case MotionEvent.ACTION_UP:  
            thread.setBubble(touchX, touchY);  
            float totalTime = e.getEventTime() - e.getDownTime();  
            Toast.makeText(ctx, "Touch time in ms was " + totalTime,  
                           Toast.LENGTH_SHORT).show();  
            break;  
        }  
    return true;  
}
```

That's all Folks!