flight

Android Developer Options

Andrea Falcone

Senior Software Engineer, Fabric

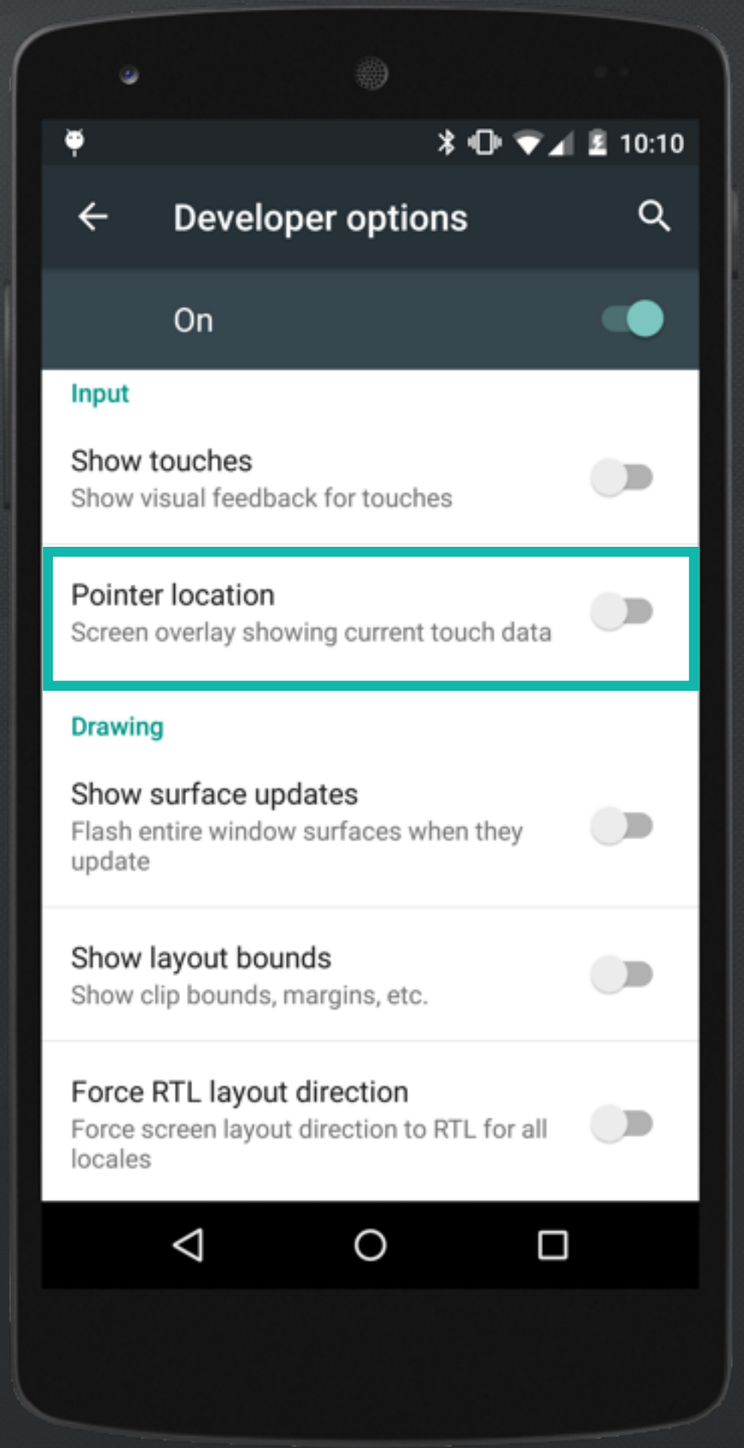
@asfalcone

You Are Now a Developer!

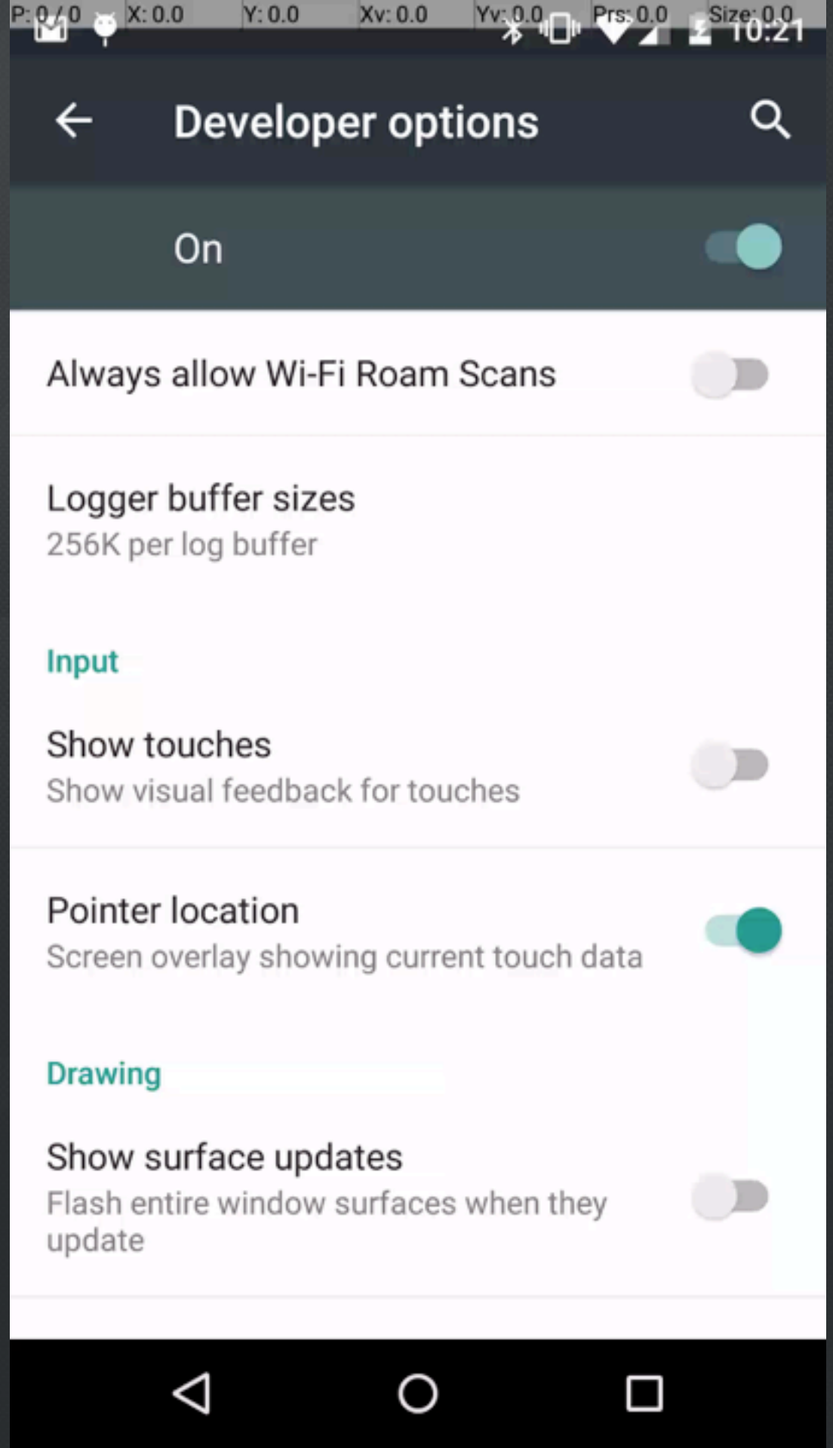
Agenda

- Debugging UI
- Debugging Performance
- Debugging Crashes

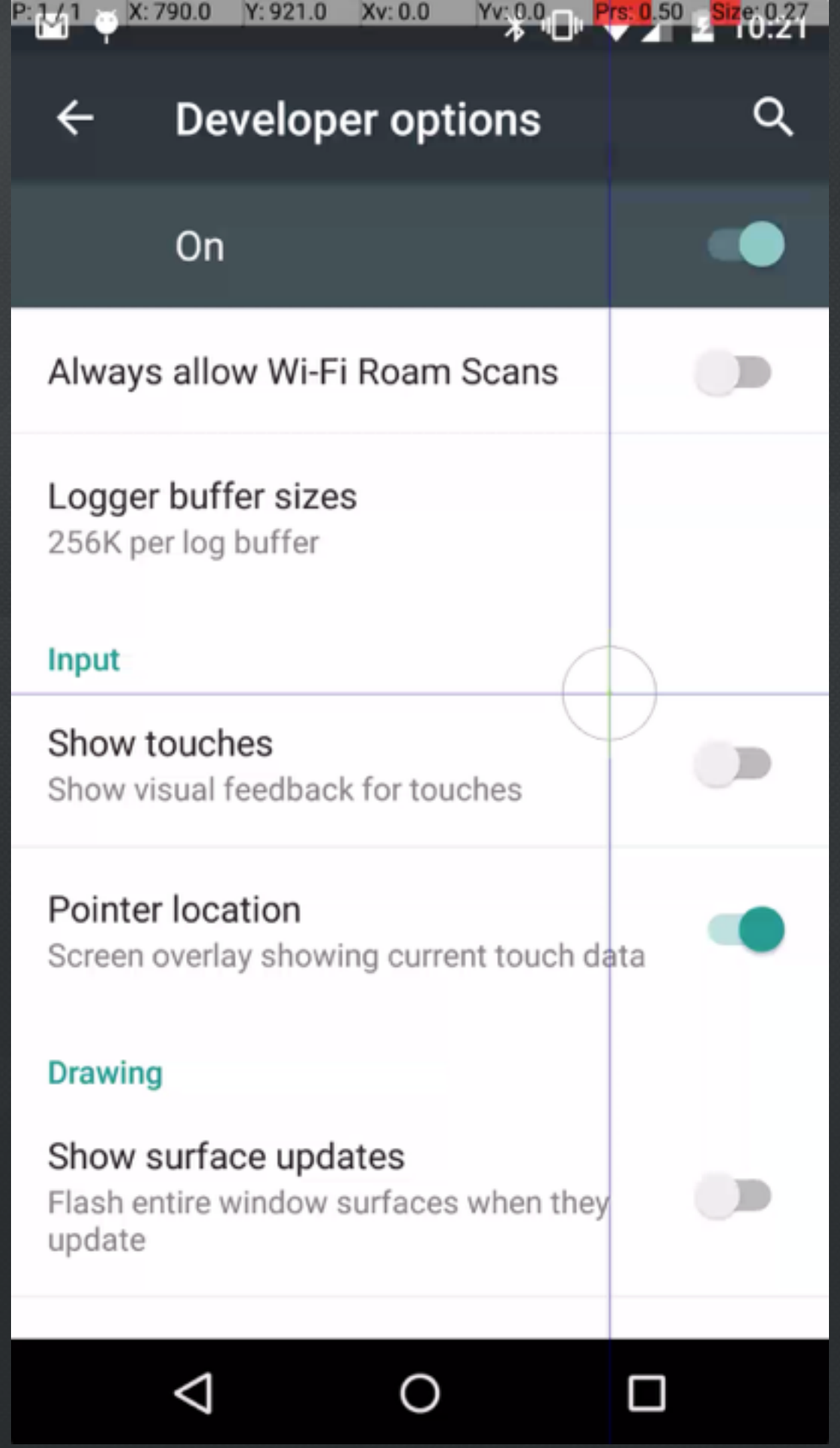
Debugging UI


10:10
Developer options
On
Input
Show touches
Show visual feedback for touches
Pointer location
Screen overlay showing current touch data
Drawing
Show surface updates
Flash entire window surfaces when they update
Show layout bounds
Show clip bounds, margins, etc.
Force RTL layout direction
Force screen layout direction to RTL for all locales

flight


P: 0 / 0 X: 0.0 Y: 0.0 Xv: 0.0 Yv: 0.0 Prs: 0.0 Size: 0.0
10:21
Developer options
On
Always allow Wi-Fi Roam Scans
Logger buffer sizes
256K per log buffer
Input
Show touches
Show visual feedback for touches
Pointer location
Screen overlay showing current touch data
Drawing
Show surface updates
Flash entire window surfaces when they update

flight


P: 1 / 1 X: 790.0 Y: 921.0 Xv: 0.0 Yv: 0.0 Prs: 0.50 Size: 0.27
10:21
Developer options
On
Always allow Wi-Fi Roam Scans
Logger buffer sizes
256K per log buffer
Input
Show touches
Show visual feedback for touches
Pointer location
Screen overlay showing current touch data
Drawing
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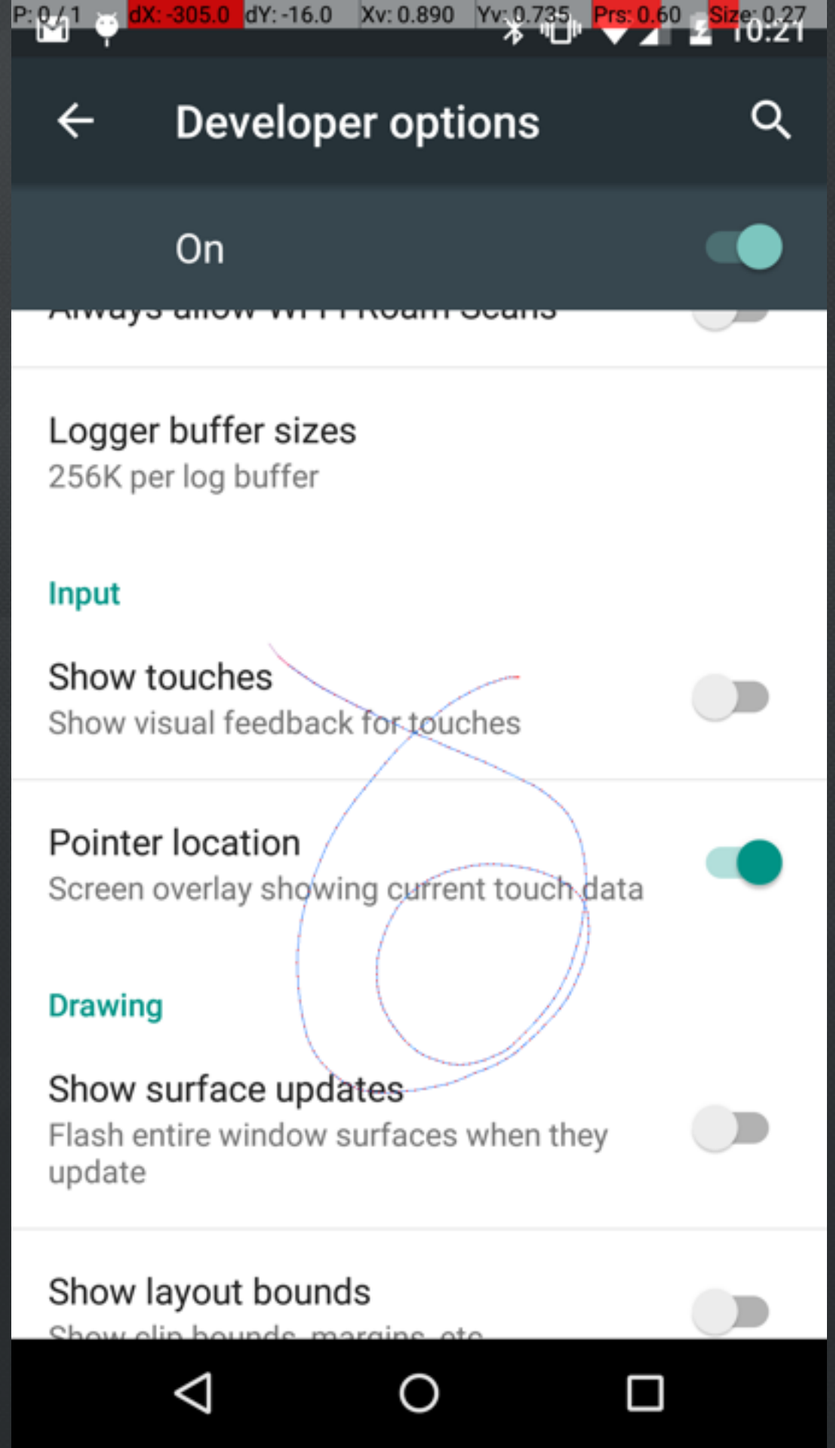
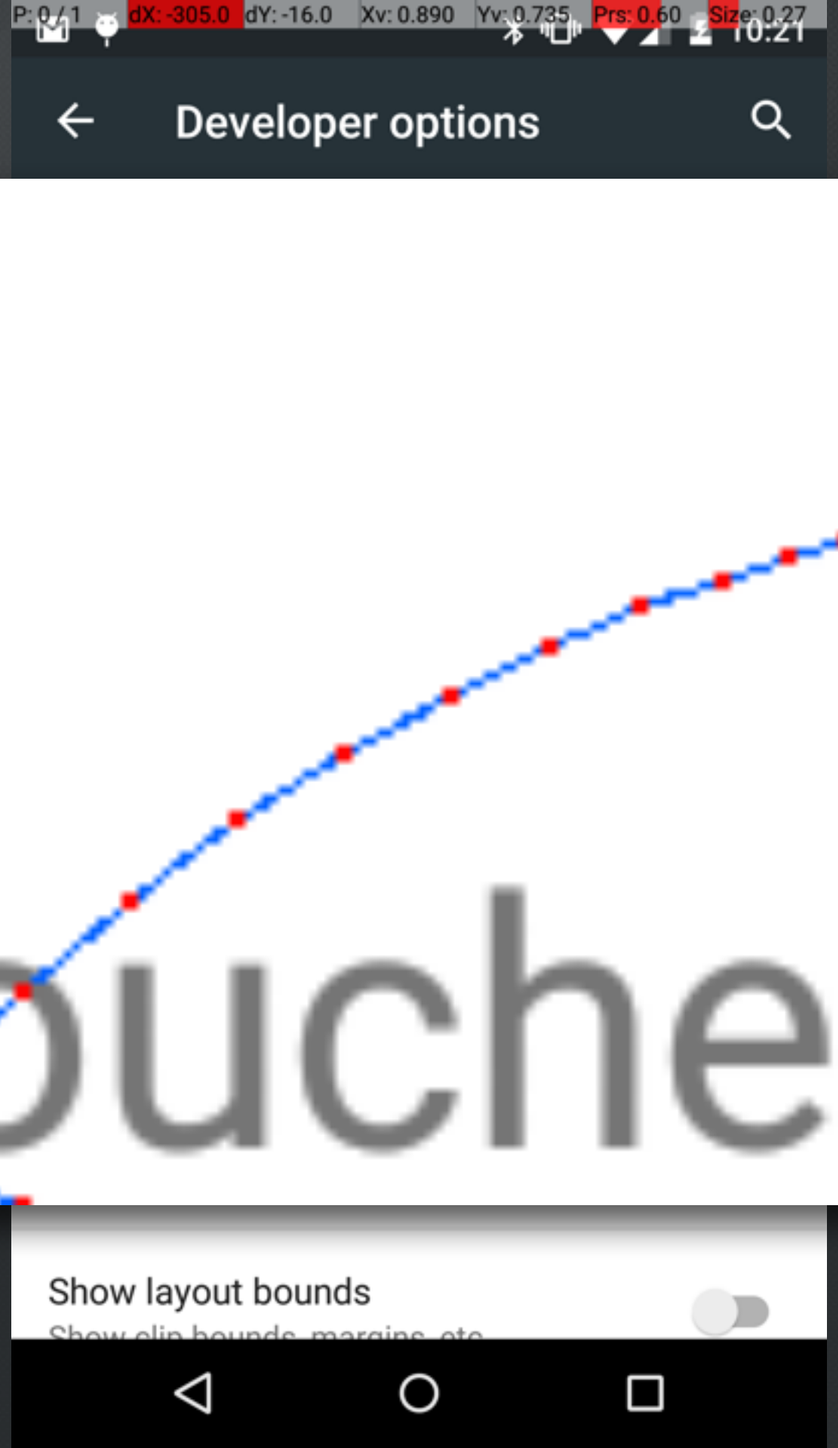
Flash entire window surfaces when they update

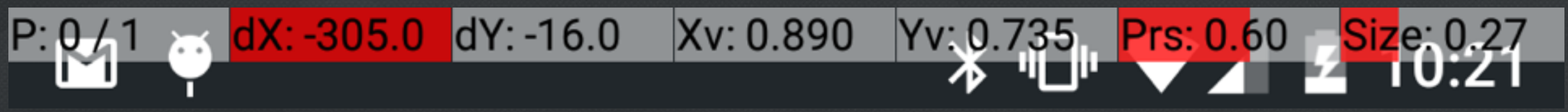
flight


P: 0 / 1 dX: -305.0 dY: -16.0 Xv: 0.890 Yv: 0.735 Prs: 0.60 Size: 0.27
10:21
Developer options
On
Logger buffer sizes
256K per log buffer
Input
Show touches
Show visual feedback for touches
Pointer location
Screen overlay showing current touch data
Drawing
Show surface updates
Flash entire window surfaces when they update
Show layout bounds

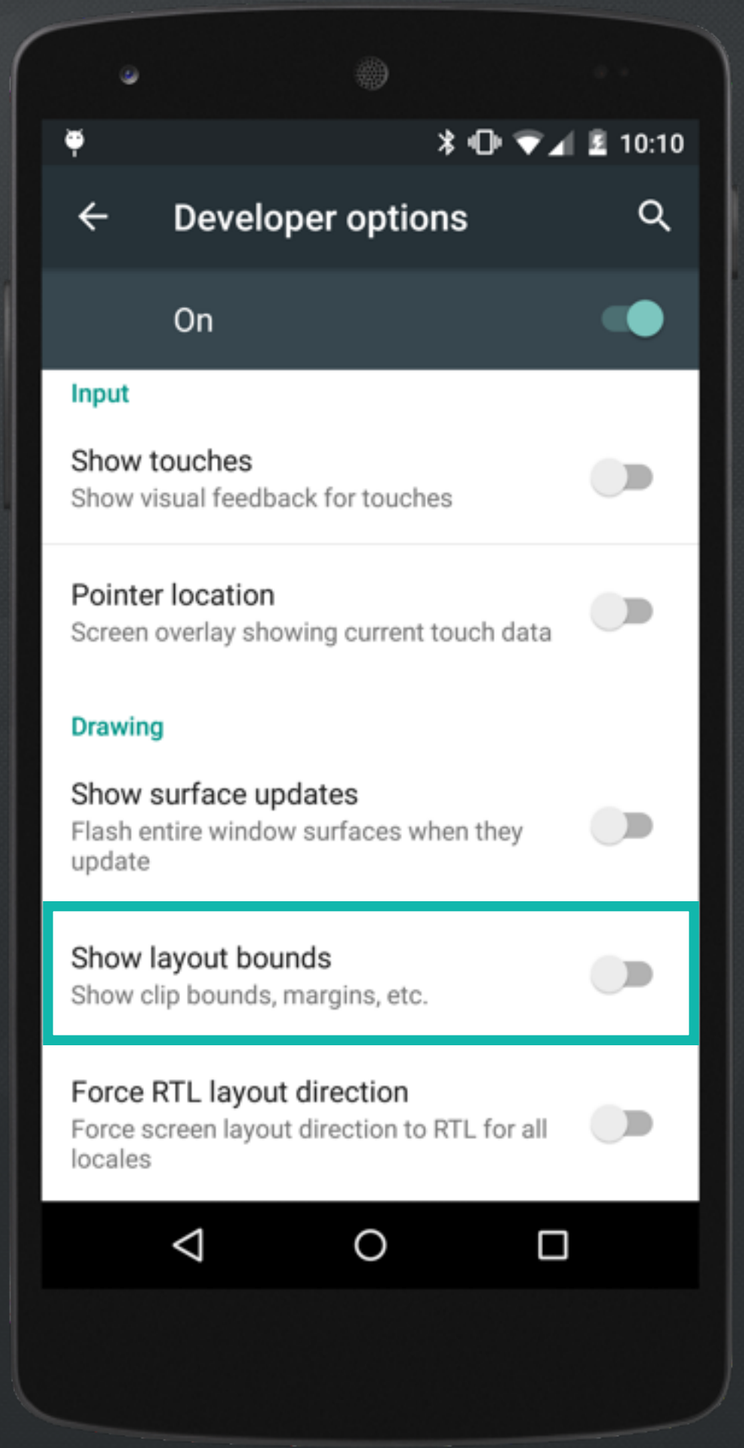
flight


P: 0 / 1 dX: -305.0 dY: -16.0 Xv: 0.890 Yv: 0.735 Prs: 0.60 Size: 0.27
10:21
Developer options
touches
Show layout bounds

flight



flight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Developer options
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Pointer location
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Drawing
Show surface updates
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Show layout bounds
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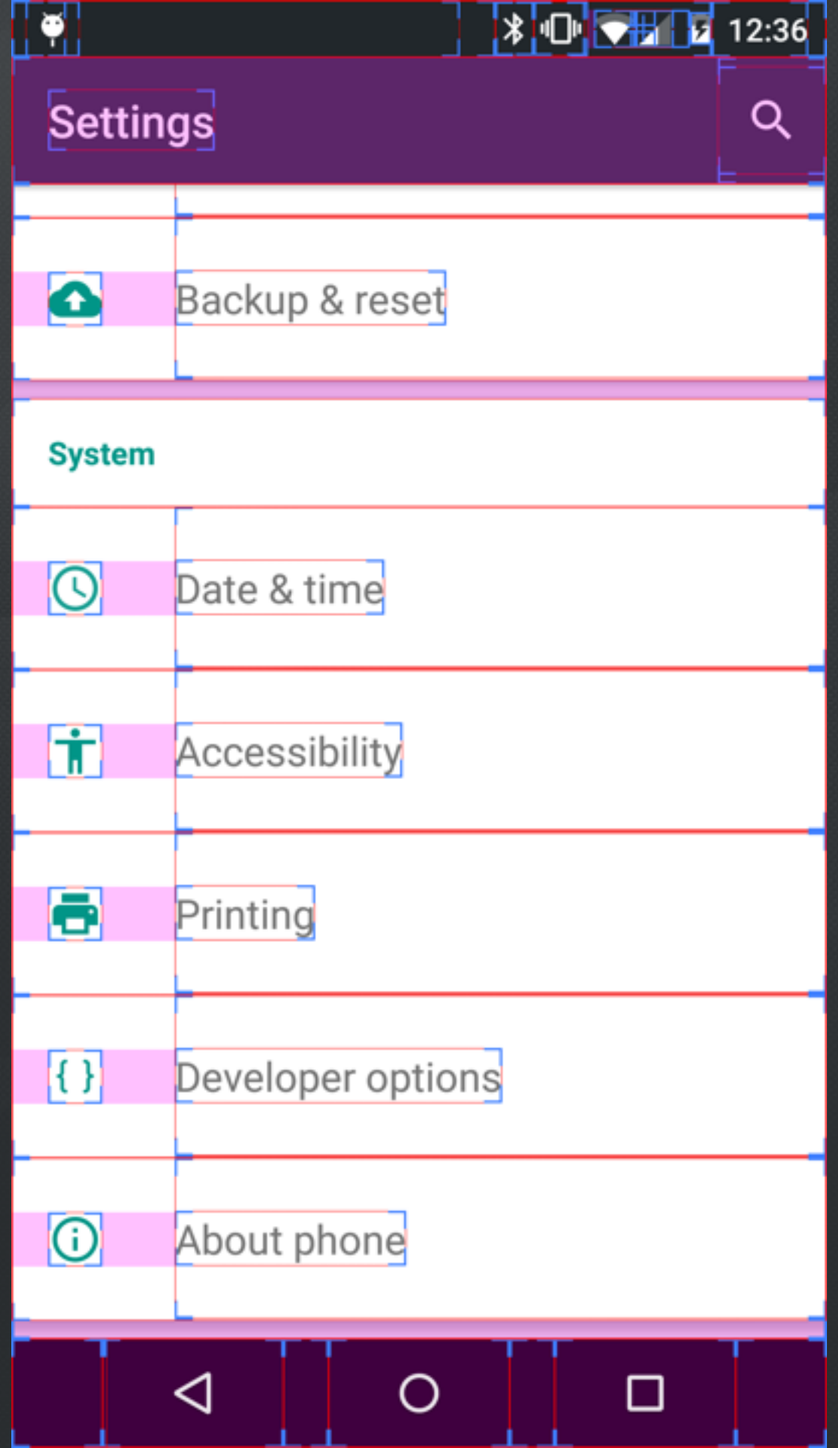
Force RTL layout direction
Force screen layout direction to RTL for all locales

flight



Margins

Optical bounds

Clip bounds

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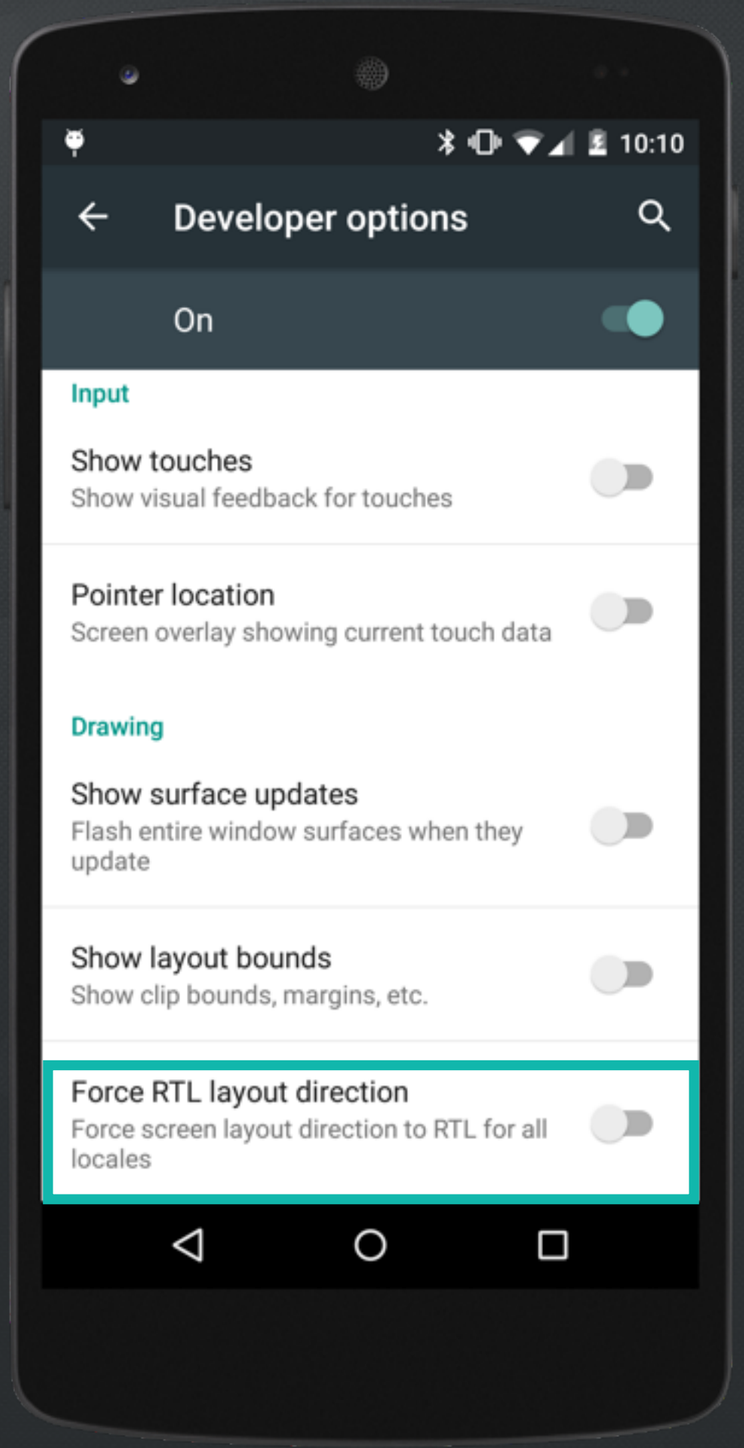
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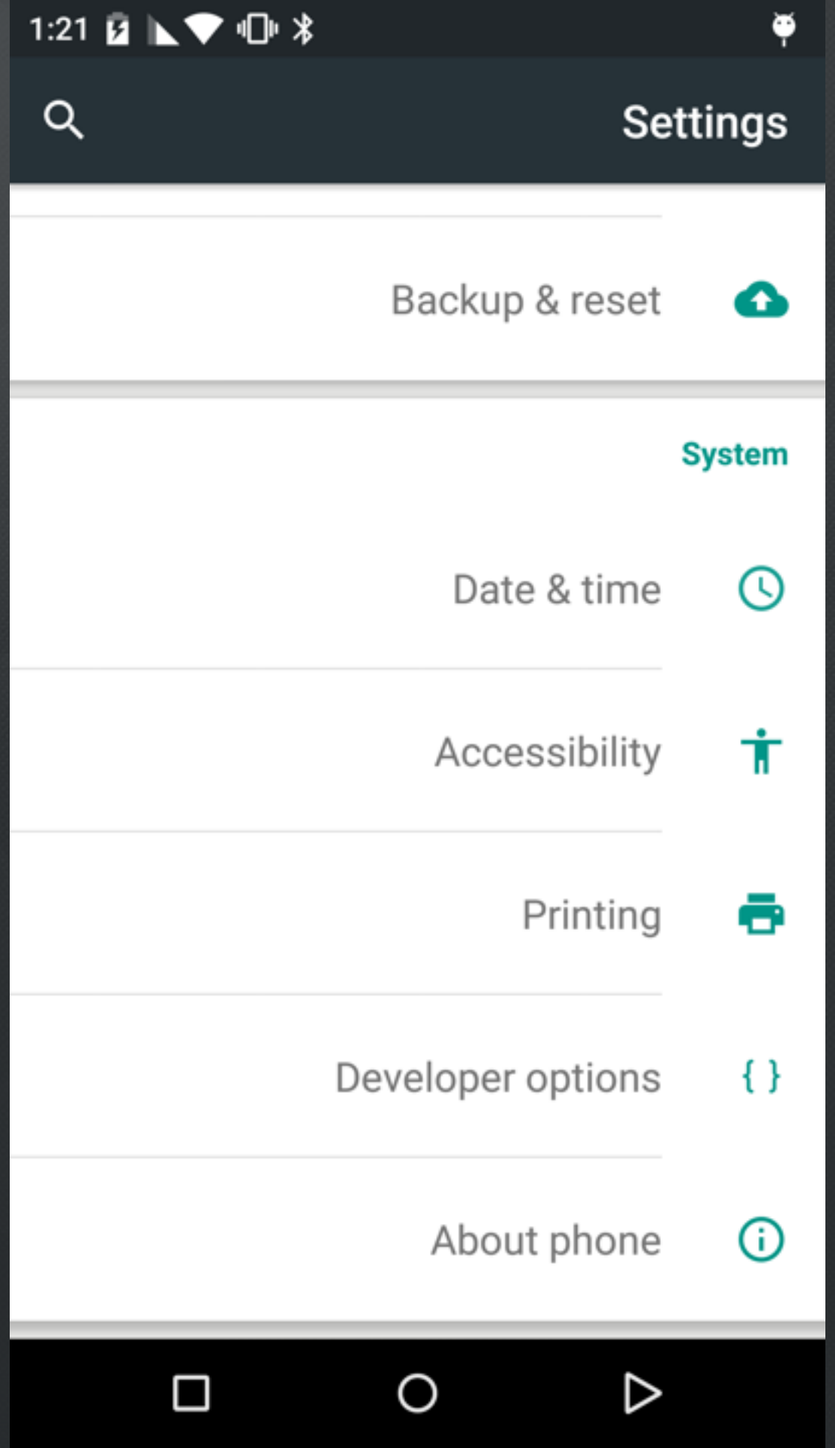
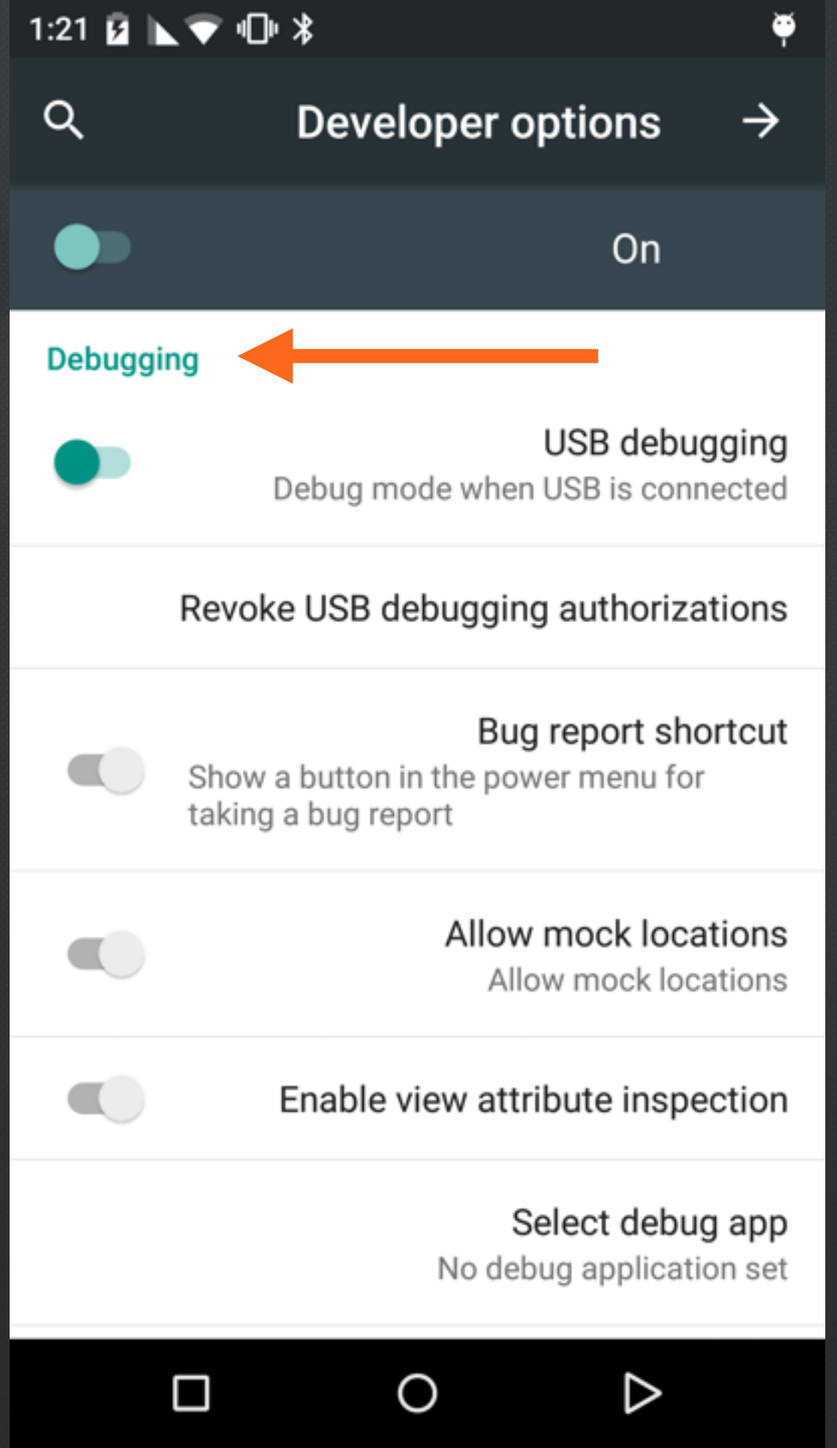
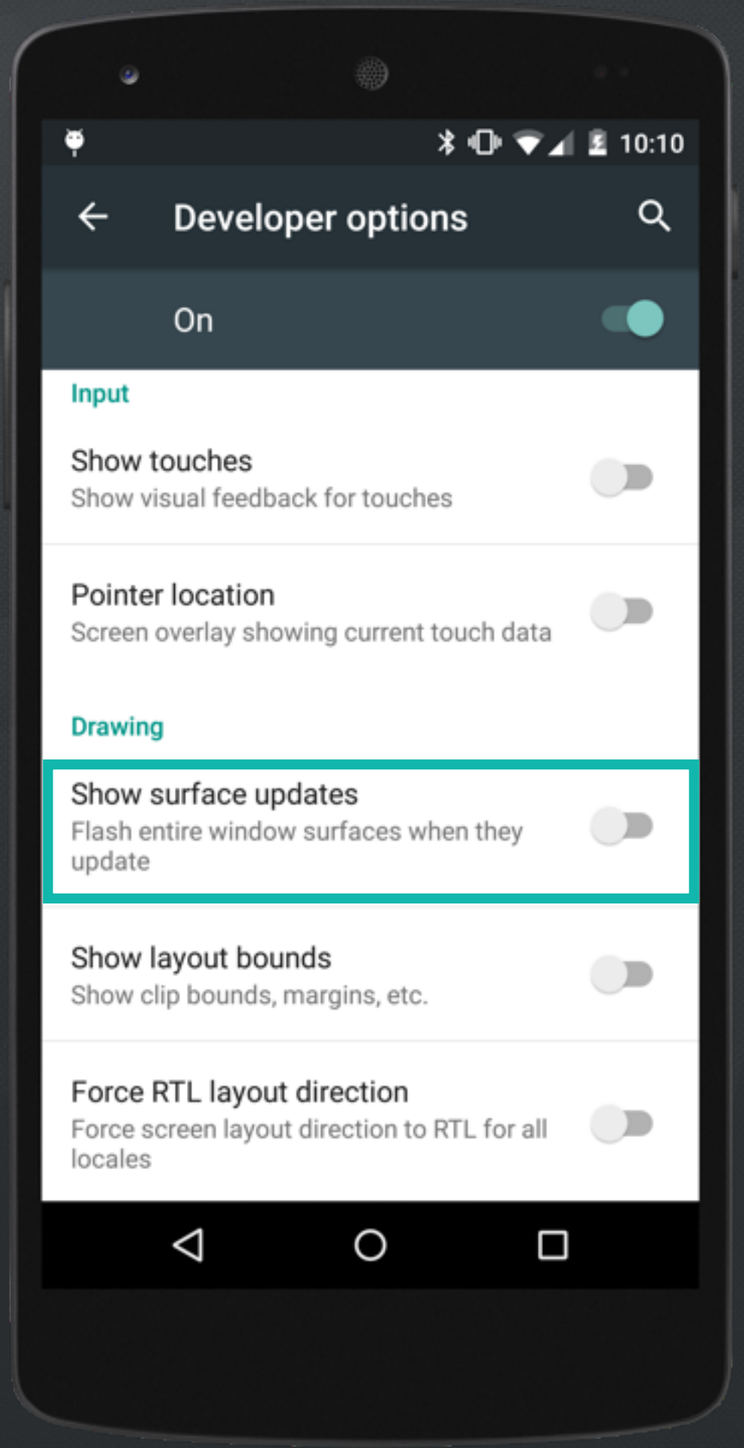

1:21
Settings
Backup & reset
System
Date & time
Accessibility
Printing
Developer options
About phone


1:21
Developer options
On
Debugging
USB debugging
Debug mode when USB is connected
Revoke USB debugging authorizations
Bug report shortcut
Show a button in the power menu for taking a bug report
Allow mock locations
Allow mock locations
Enable view attribute inspection
Select debug app
No debug application set

flight

Debugging Performance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Developer options
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Input
Show touches
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Pointer location
Screen overlay showing current touch data
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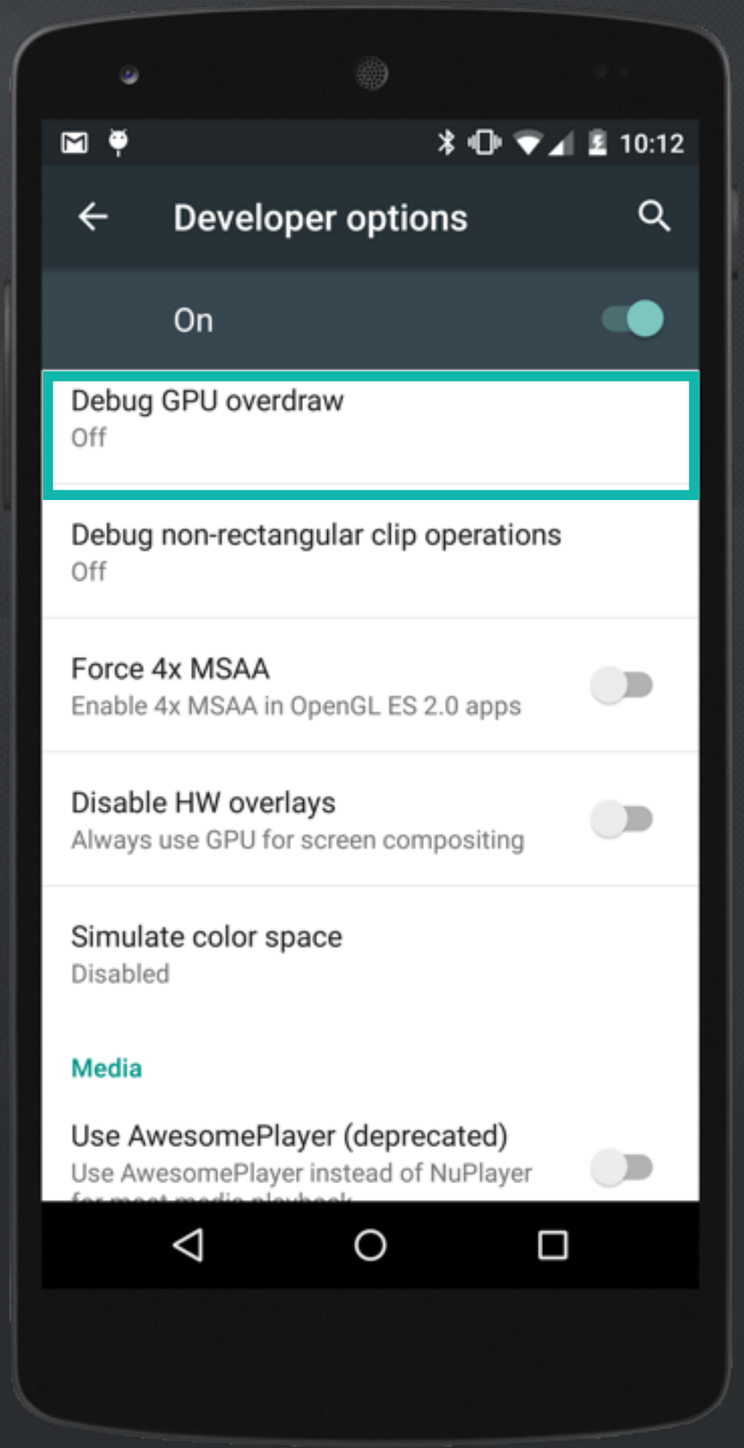
flight


10:12
Developer options
On
Debug GPU overdraw
Off
Debug non-rectangular clip operations
Off
Force 4x MSAA
Enable 4x MSAA in OpenGL ES 2.0 apps
Disable HW overlays
Always use GPU for screen compositing
Simulate color space
Disabled
Media
Use AwesomePlayer (deprecated)
Use AwesomePlayer instead of NuPlayer

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No overdraw

1x overdraw

2x overdraw

3x overdraw

4+x overdraw

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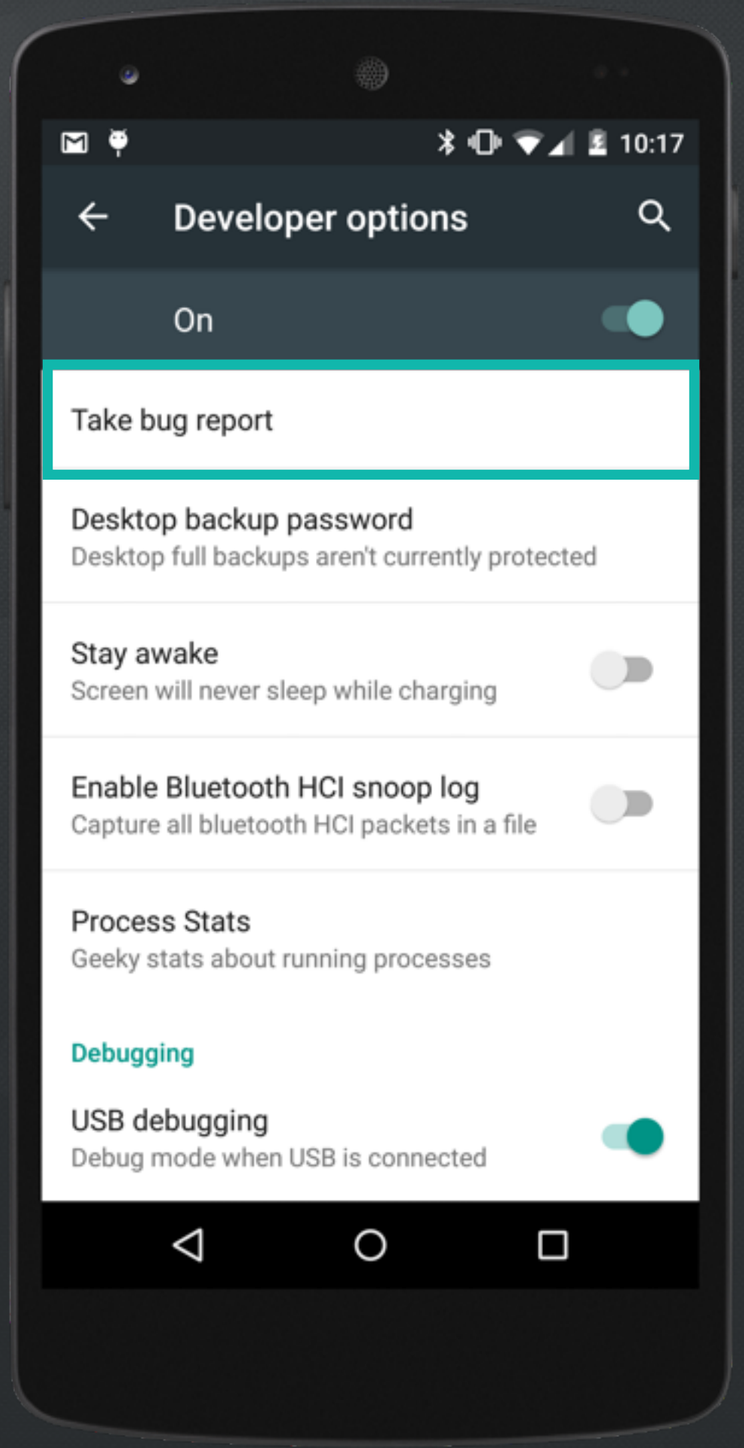
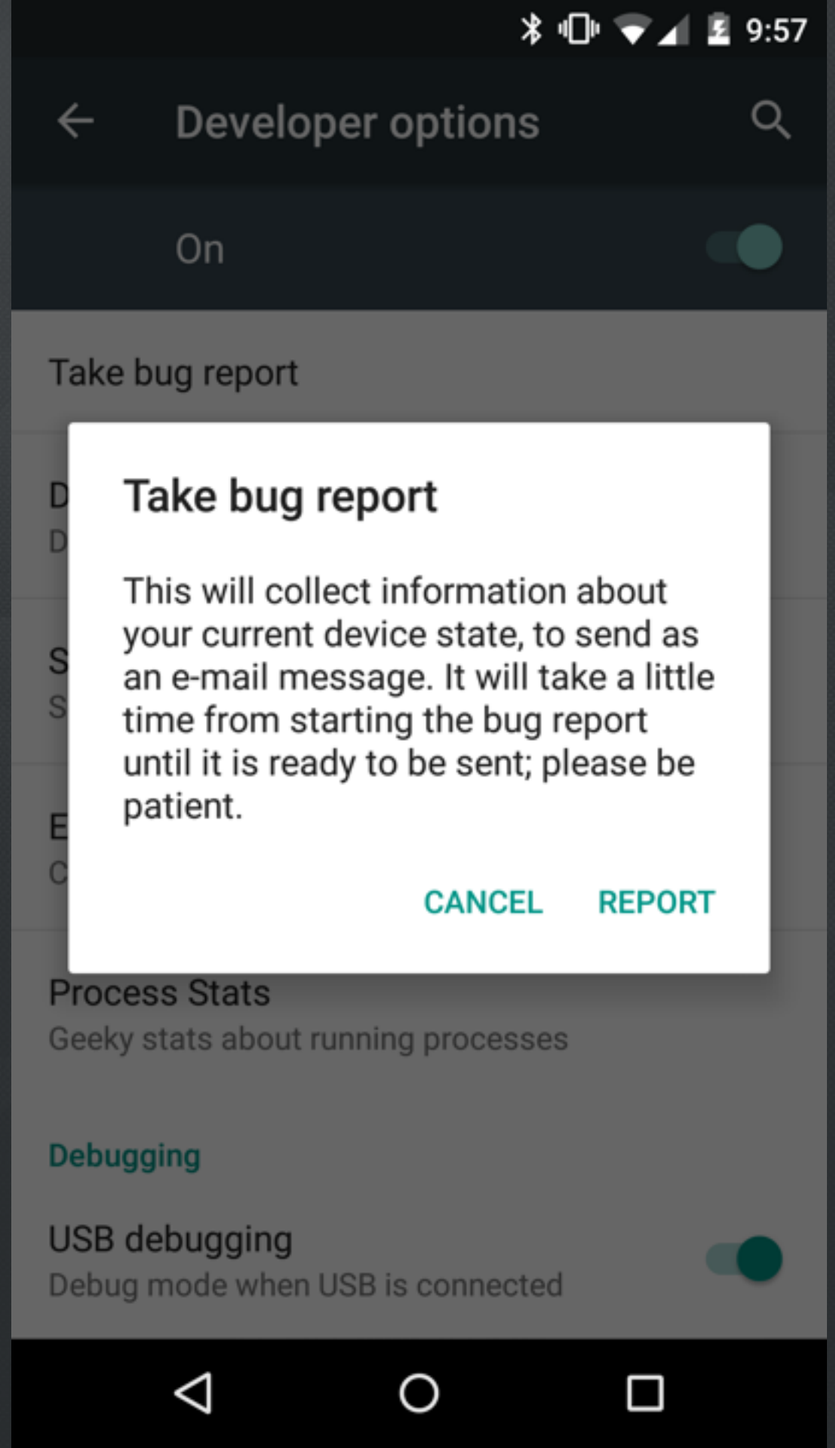
Debugging Crashes


10:17
Developer options
On
Take bug report
Desktop backup password
Desktop full backups aren't currently protected
Stay awake
Screen will never sleep while charging
Enable Bluetooth HCI snoop log
Capture all bluetooth HCI packets in a file
Process Stats
Geeky stats about running processes
Debugging
USB debugging
Debug mode when USB is connected

flight

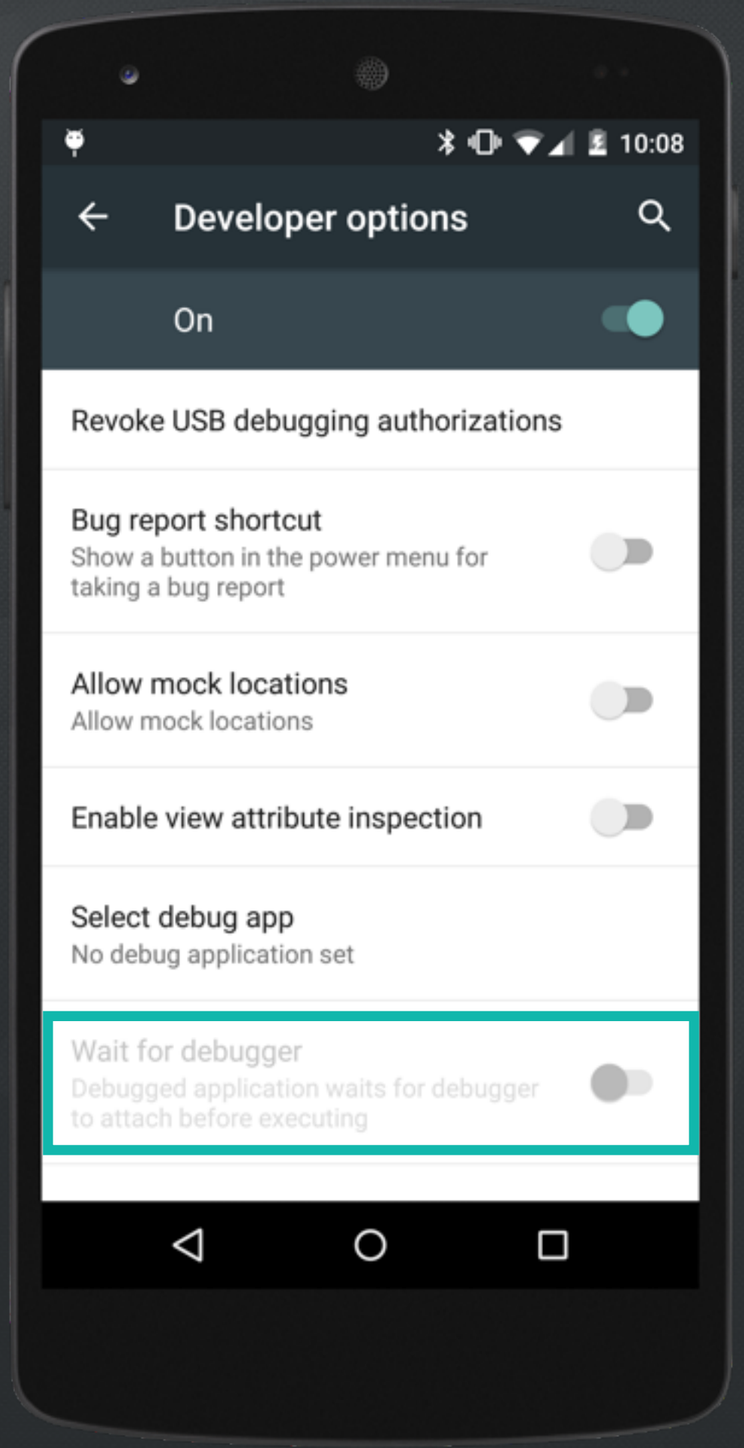

9:57
Developer options
On
Take bug report
Take bug report
This will collect information about your current device state, to send as an e-mail message. It will take a little time from starting the bug report until it is ready to be sent; please be patient.
CANCEL
REPORT
Process Stats
Geeky stats about running processes
Debugging
USB debugging
Debug mode when USB is connected

flight

```
============================================================
== dumpstate: 2015-08-04 21:58:08
============================================================

Build: LMY48B
Build fingerprint: 'google/hammerhead/hammerhead:5.1.1/LMY48B/1863243:user/release-keys'
Bootloader: HHZ12h
Radio: msm
Network: AT&T
Kernel: Linux version 3.4.0-gbebb36b (android-build@vpbs1.mtv.corp.google.com) (gcc version 4.7 (GCC) ) #1 SMP PREEMPT
Tue Mar 10 18:17:45 UTC 2015
Command line: console=ttyHSL0,115200,n8 androidboot.hardware=hammerhead user_debug=31 maxcpus=2 msm_watchdog_v2.enable=1
uart_console=enable gpt=enable lge.kcal=0|0|0|x lge.rev=rev_11 androidboot.laf androidboot.emmc=true
androidboot.serialno=02babba909118bc8 androidboot.bootloader=HHZ12h androidboot.baseband=msm bootreason=power_on
androidboot.hardware.sku=D820 androidboot.hardware.ddr=hynix androidboot.hardware.display=orise

------ UPTIME (uptime) ------
up time: 12 days, 10:08:53, idle time: 3 days, 20:48:12, sleep time: 8 days, 20:53:05
[uptime: 0.100s elapsed]

------ MMC PERF (/sys/block/mmcblk0/stat) ------
16868066  2922795 1197503561 57465550  9632411 11145884 248751740 112926170        0 25330280 170363960

------ MEMORY INFO (/proc/meminfo) ------
MemTotal:        1900556 kB
MemFree:          336372 kB
Buffers:            6836 kB
Cached:           495724 kB
SwapCached:            0 kB
Active:           871836 kB
Inactive:         403068 kB
Active(anon):     775808 kB
Inactive(anon):    42756 kB
Active(file):      96028 kB
Inactive(file):   360312 kB
Unevictable:        1340 kB
Mlocked:              28 kB
HighTotal:       1158144 kB
HighFree:          62464 kB
```

flight

```
UPTIME (uptime)
MMC PERF (/sys/block/mmcblk0/stat)
MEMORY INFO (/proc/meminfo)
CPU INFO (top -n 1 -d 1 -m 30 -t)
PROCESSES (ps -P)
PROCESSES AND THREADS (ps -t -p -P)
APP ACTIVITIES (dumpsys activity all)
APP SERVICES (dumpsys activity service all)
APP PROVIDERS (dumpsys activity provider all)
SYSTEM LOG (logcat -v threadtime -d *:v)
VM TRACES JUST NOW (/data/anr/traces.txt.bugreport)
```


10:08
Developer options
On
Revoke USB debugging authorizations
Bug report shortcut
Show a button in the power menu for taking a bug report
Allow mock locations
Allow mock locations
Enable view attribute inspection
Select debug app
No debug application set
Wait for debugger
Debugged application waits for debugger to attach before executing

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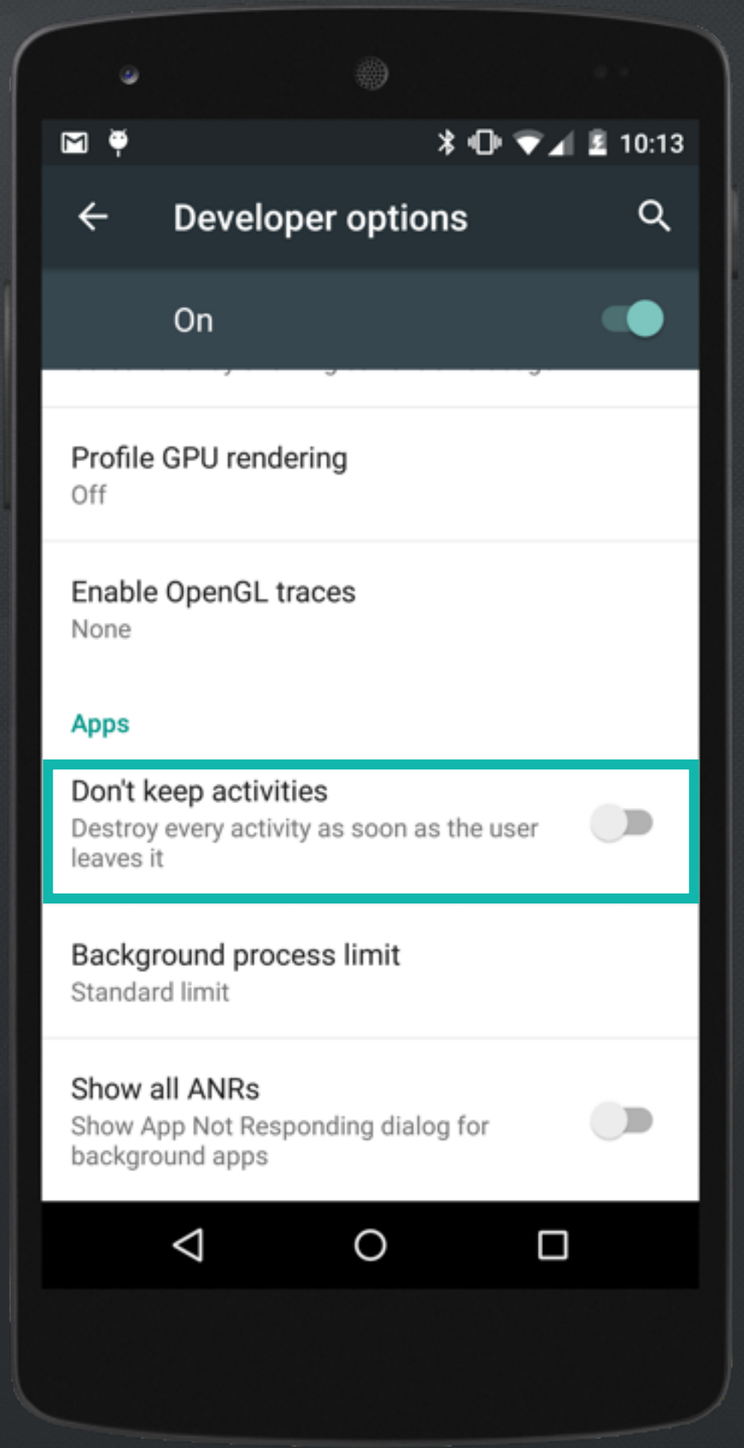
```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);

    android.os.Debug.waitForDebugger();
    int breakpoint = 1;
}
```

flight


10:13
Developer options
On
Profile GPU rendering
Off
Enable OpenGL traces
None
Apps
Don't keep activities
Destroy every activity as soon as the user leaves it
Background process limit
Standard limit
Show all ANRs
Show App Not Responding dialog for background apps

flight

```
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);

    if (savedInstanceState != null) {
        // TODO: Find Bugs Here!
    } else {
        ...
    }
}
```

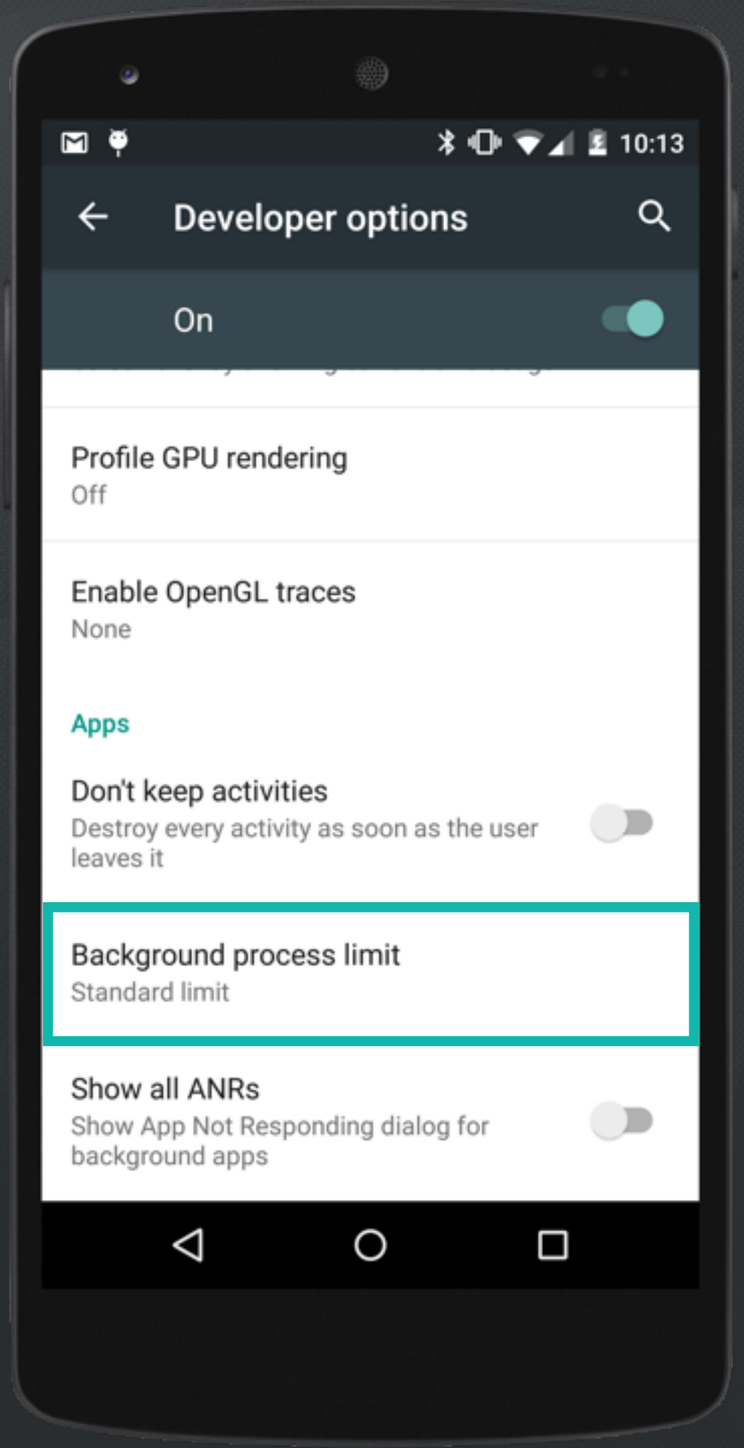
```
public void onSaveInstanceState(Bundle savedInstanceState) {
    // TODO: Find Bugs Here!
    ...

    super.onSaveInstanceState(savedInstanceState);
}
```

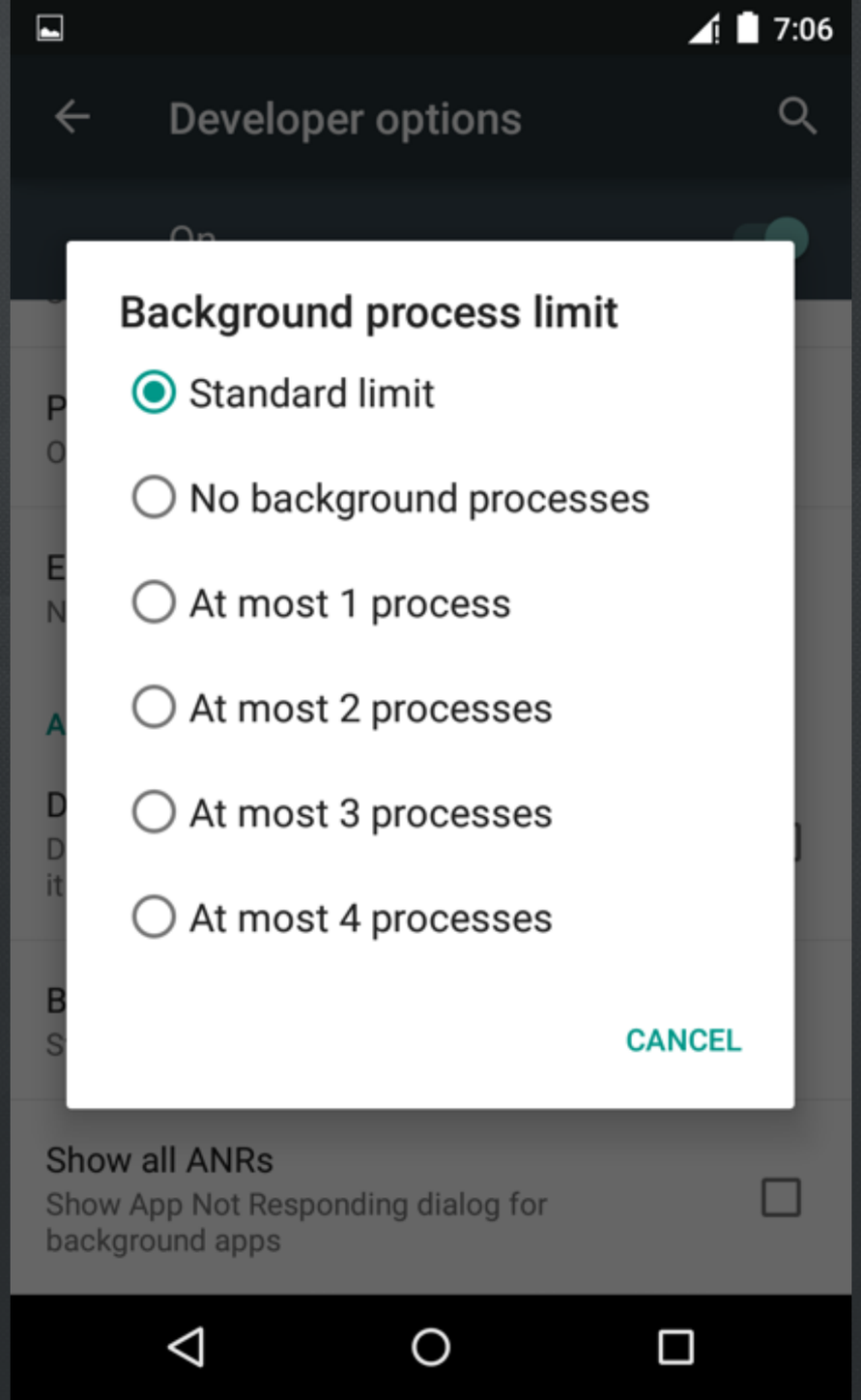
```
public void onRestoreInstanceState(Bundle savedInstanceState) {
    super.onRestoreInstanceState(savedInstanceState);

    // TODO: Find Bugs Here!
    ...
}
```

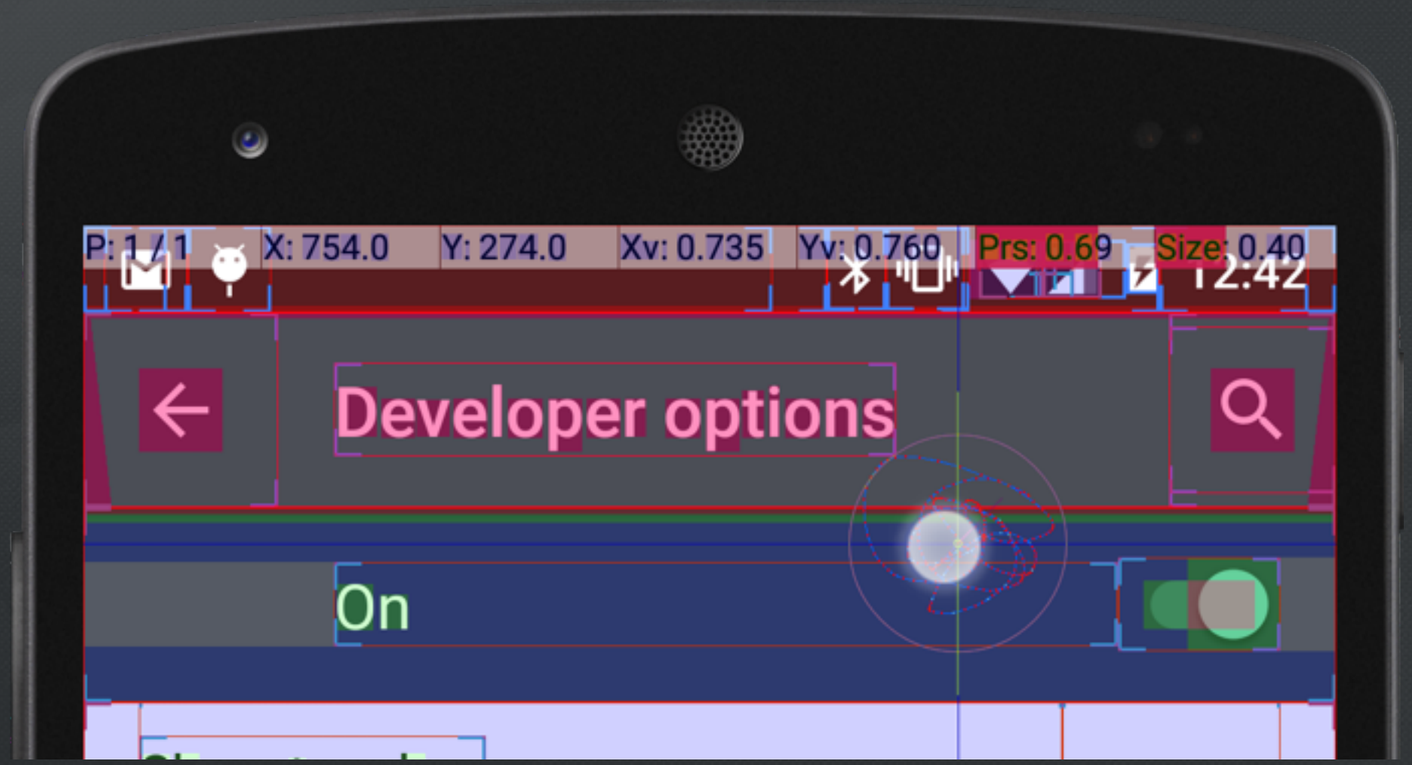
flight


10:13
Developer options
On
Profile GPU rendering
Off
Enable OpenGL traces
None
Apps
Don't keep activities
Destroy every activity as soon as the user leaves it
Background process limit
Standard limit
Show all ANRs
Show App Not Responding dialog for background apps

flight


7:06
Developer options
Background process limit
Standard limit
No background processes
At most 1 process
At most 2 processes
At most 3 processes
At most 4 processes
CANCEL
Show all ANRs
Show App Not Responding dialog for background apps

flight


P: 1 / 1
X: 754.0
Y: 274.0
Xv: 0.735
Yv: 0.760
Prs: 0.69
Size: 0.40
12:42
Developer options
On

flight

Thank You

@asfalcone

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