

# **RSA**®Conference2015

San Francisco | April 20-24 | Moscone Center

SESSION ID: HTA-T08

## How We Discovered Thousands of Vulnerable Android Apps in 1 Day

**Joji Montelibano**

Vulnerability Analysis Technical Manager

CERT

@certcc

**Will Dormann**

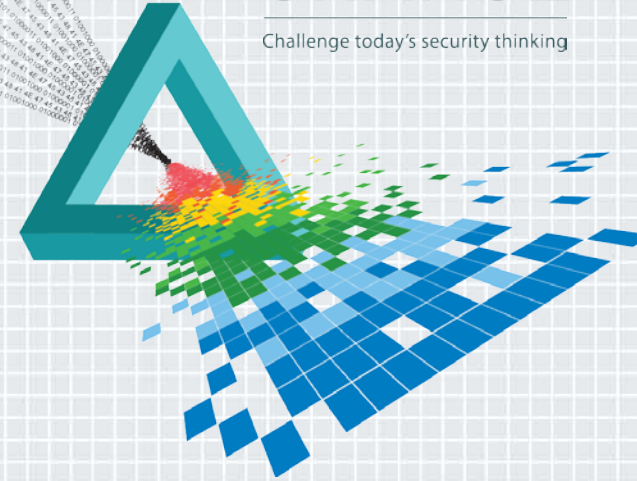
Vulnerability Analyst

CERT

@wdormann

# CHANGE

Challenge today's security thinking



# Copyright

Copyright 2015 Carnegie Mellon University

This material is based upon work funded and supported by the Department of Defense under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center.

Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the United States Department of Defense.

References herein to any specific commercial product, process, or service by trade name, trade mark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by Carnegie Mellon University or its Software Engineering Institute.

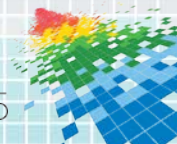
NO WARRANTY. THIS CARNEGIE MELLON UNIVERSITY AND SOFTWARE ENGINEERING INSTITUTE MATERIAL IS FURNISHED ON AN "AS-IS" BASIS. CARNEGIE MELLON UNIVERSITY MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER INCLUDING, BUT NOT LIMITED TO, WARRANTY OF FITNESS FOR PURPOSE OR MERCHANTABILITY, EXCLUSIVITY, OR RESULTS OBTAINED FROM USE OF THE MATERIAL. CARNEGIE MELLON UNIVERSITY DOES NOT MAKE ANY WARRANTY OF ANY KIND WITH RESPECT TO FREEDOM FROM PATENT, TRADEMARK, OR COPYRIGHT INFRINGEMENT.

This material has been approved for public release and unlimited distribution.

This material may be reproduced in its entirety, without modification, and freely distributed in written or electronic form without requesting formal permission. Permission is required for any other use. Requests for permission should be directed to the Software Engineering Institute at [permission@sei.cmu.edu](mailto:permission@sei.cmu.edu).

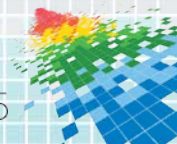
CERT® and CERT Coordination Center® are registered marks of Carnegie Mellon University.

DM-0002136



# What is CERT?

- ◆ Center of Internet security expertise
- ◆ Established in 1988 by the US Department of Defense on the heels of the Morris worm that created havoc on the ARPANET, the precursor to what is the Internet today
- ◆ Located in the Software Engineering Institute (SEI)
  - ◆ Federally Funded Research & Development Center (FFRDC)
  - ◆ Operated by Carnegie Mellon University (Pittsburgh, Pennsylvania)

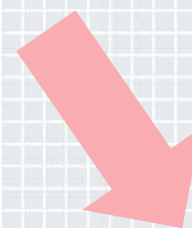


# CERT Vulnerability Analysis

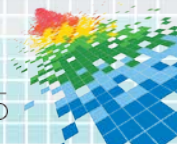
Mission: Make Software Safer



Vulnerability  
Coordination



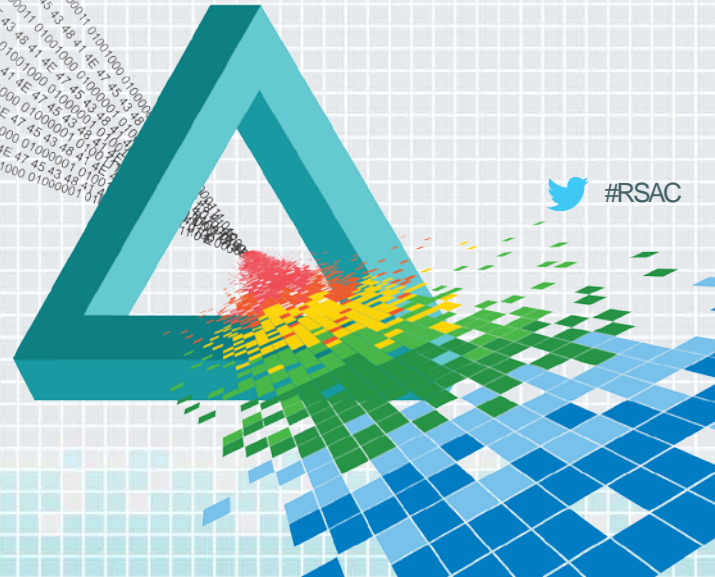
Vulnerability  
Discovery



# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

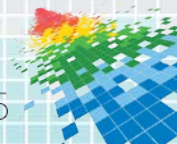
## Vulnerability Coordination *Is easy?*



 #RSAC

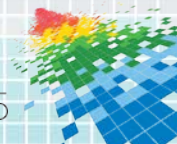
# ActiveX

- ◆ Dranzer + HijackThis logs + Automation = Lots of Vulnerabilities
- ◆ Vulnerability Detection in ActiveX Controls through Automated Fuzz Testing (Jan 2008) <http://resources.sei.cmu.edu/library/asset-view.cfm?assetid=53466>



# ActiveX

- ◆ Thousands of vulnerabilities discovered.
- ◆ Manual coordination of important/popular ones.
- ◆ Many ignored.



# ffmpeg

- ◆ ffmpeg + BFF = lots of uniquely-crashing testcases

[msg6282 \(view\)](#)

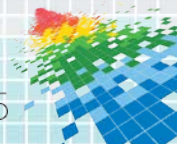
**Author: WD**

**Date: 2009-06-30.18:28:54**

Attached is a zip file with multiple (73) files that cause ffmpeg to crash. The crashers are in a subset of various codecs. Included with each codec/directory are:

- 1) The seed/good [file](#)
- 2) Variations of the file that cause crashes (basename.x.y)
- 3) GDB output for the crashing testcases
- 4) Valgrind output for the crashing testcases
- 5) tabriffdump output for the crashing testcases
- 6) A diff summary of what is different between the crashing testcase and the original file, RIFF-header-wise.

About half of the crashers are something that is in a RIFF header for the file (e.g. ImageHeight, ImageWidth, dsScale, etc.) The other half appear to be something specific decoding of the codec.



# ffmpeg response

[msg6333 \(view\)](#)

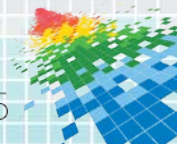
**Author: reimar**

**Date: 2009-07-03.11:55:02**

On Tue, Jun 30, 2009 at 06:28:54PM +0000, WD wrote:

> Attached is a zip file with multiple (73) files that cause ffmpeg to crash.

A lot of these file crash no longer with SVN, please get rid of those that work now, 73 files are simply too much to handle.

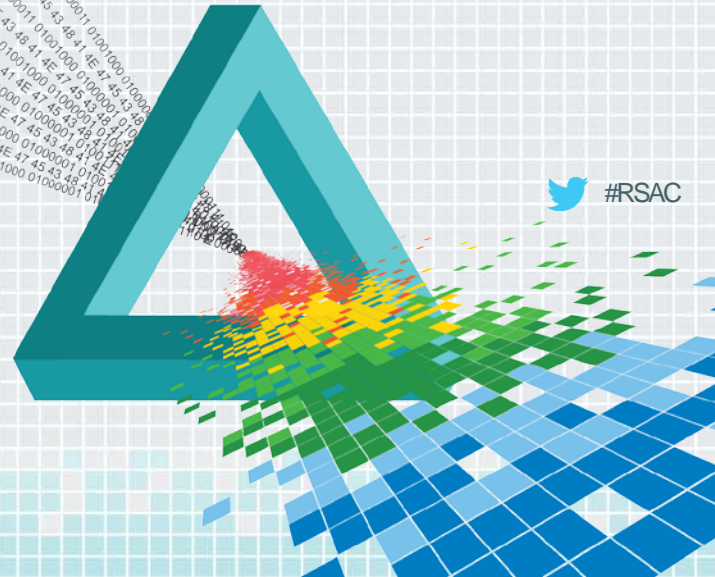


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

## Background

*Where am I and how did I get here?*



 #RSAC

# History

## ◆ Download.com



Download.com

 **Download.com**  
Powered by cnet

 **KMPlayer**

SPECIAL OFFER

Please read the following important information and terms before

Install Search Protect to set my homepage and default search to Conduit Search for Internet Explorer™, Firefox™, and Chrome™, and to block other software's attempts to change my browser's home page and search settings. [Learn more.](#)

**CLICK HERE**

Search Protect End User Instructions

Search Protect is a desktop application designed to help you maintain your selected browser settings, including your home page and default search settings, and prevent third-party attempts to change your settings without your permission.

**DON'T CLICK HERE!**

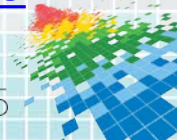
By clicking "Accept" you confirm that you have read and agree to the Search Protect [Terms of Service](#) and [Privacy Policy](#), and agree to install Search Protect.

Step 2 of 6

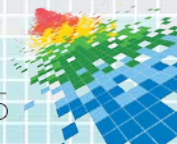
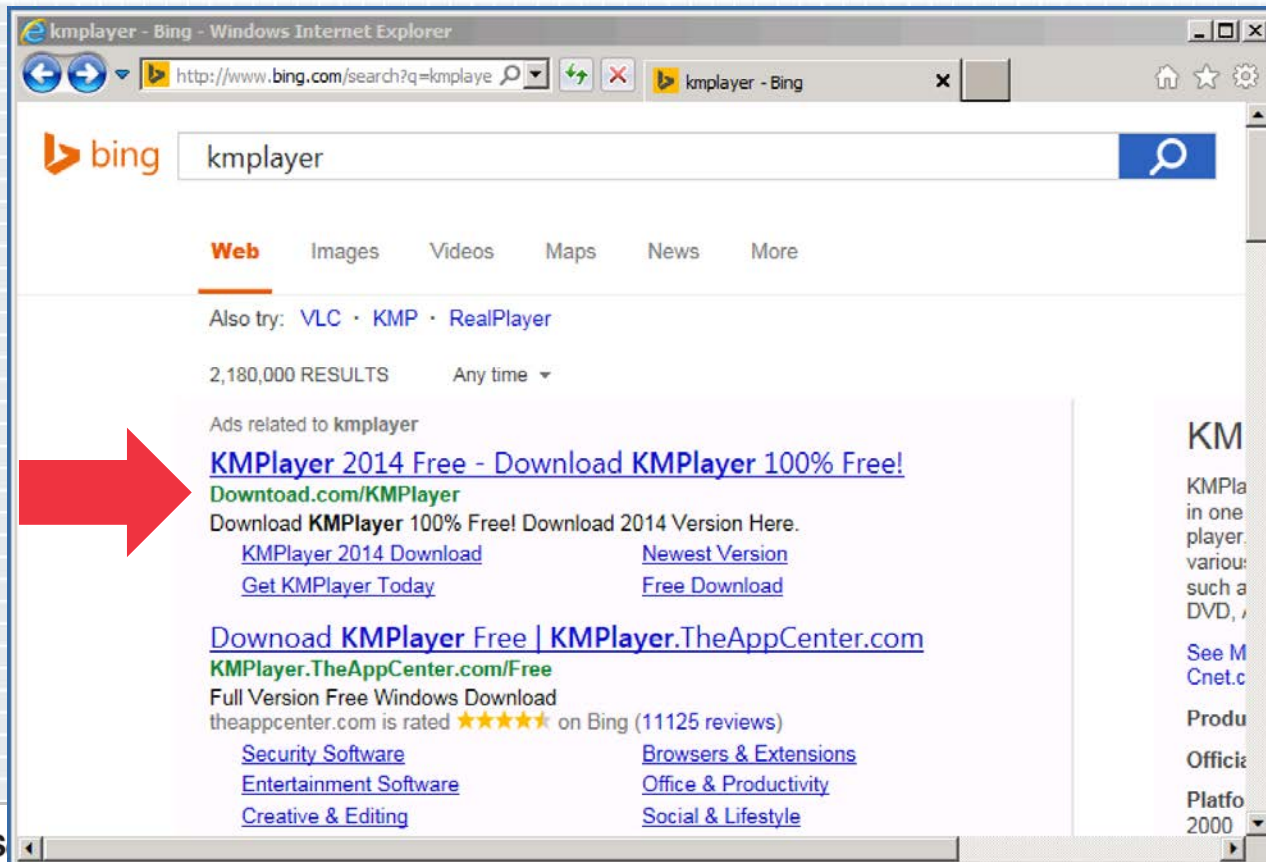
Decline

Accept

<http://www.cert.org/blogs/certcc/post.cfm?EntryID=199>

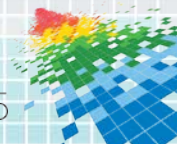


# The internet is horrible



# Identical installers

- ◆ Installers from Download.com are the same:
- ◆ 5a275a569dce6e2f2f0284d82d31310b \*cbsidlm-cbsi213-Enable\_\_Disable\_Registry\_Tool-SEO-75812481.exe
- ◆ 5a275a569dce6e2f2f0284d82d31310b \*cbsidlm-cbsi213-KMPlayer-SEO-10659939.exe



# Software retrieval

```
GET /rest/v1.0/softwareProductLink?productSetId=10659939&partTag=dlm&path=SEO&build=213 HTTP/1.1
Host: api.cnet.com
```

```
HTTP/1.1 200 OK
```

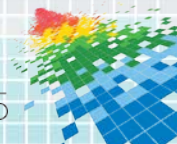
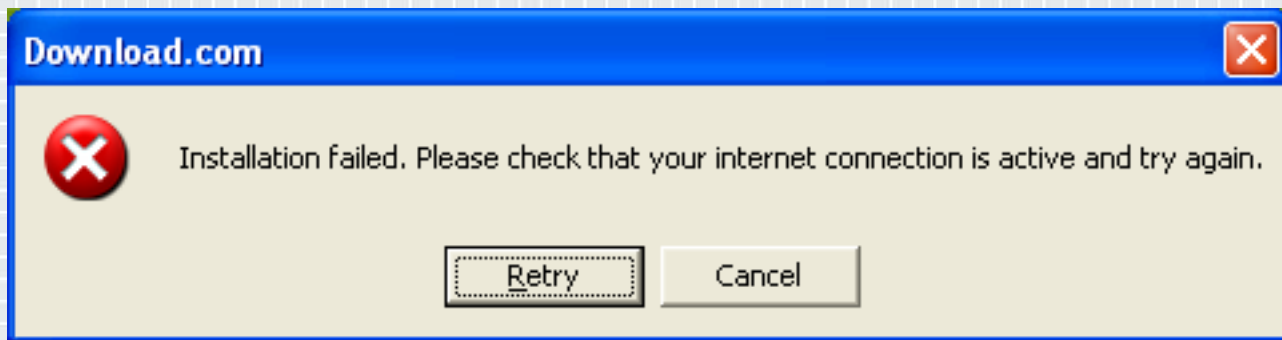
```
<?xml version="1.0" encoding="utf-8"?>
```

```
<CNETResponse xmlns="http://api.cnet.com/restApi/v1.0/ns"
xmlns:xlink="http://www.w3.org/1999/xlink" version="1.0"><SoftwareProductLink id="13819308"
setId="10659939" appVers="1.0"><Name><![CDATA[KMPlayer -
3.9.1.129]]></Name><ProductName><![CDATA[KMPlayer]]></ProductName><ProductVersion><![CDATA[3.9.1.
129]]></ProductVersion><FileName><![CDATA[KMPlayer_3.9.1.129.exe]]></FileName><FileSize><![CDATA[
35872504]]></FileSize><FileMd5Checksum><![CDATA[5d0e7d17fc4ef0802a9332c83075047c]]></FileMd5Check
sum><PublishDate><![CDATA[2014-10-
06]]></PublishDate><CategoryId><![CDATA[13632]]></CategoryId><Category><![CDATA[Downloads^Video
Software^Video
Players]]></Category><License><![CDATA[Free]]></License><DownloadLink>http://software-files-
a.cnet.com/s/software/13/81/93/08/KMPlayer_3.9.1.129.exe?token=1413054436_d56f7814cd5af230f782dd2
8550e185a</DownloadLink><TrackedDownloadLink>http://dw.cbsi.com/redir?edId=1174&siteId=4&
lop=feed.dl&ontId=13632&tag=tdw_dlman&pid=13819308&destUrl=http%3A%2F%2Fsoftware-
files-
a.cnet.com%2F%2Fsoftware%2F13%2F81%2F93%2F08%2FKMPlayer_3.9.1.129.exe%3Ftoken%3D1413054436_2defb
65a1350a3b035964c18f30fb06e%26fileName%3DKMPlayer_3.9.1.129.exe
```



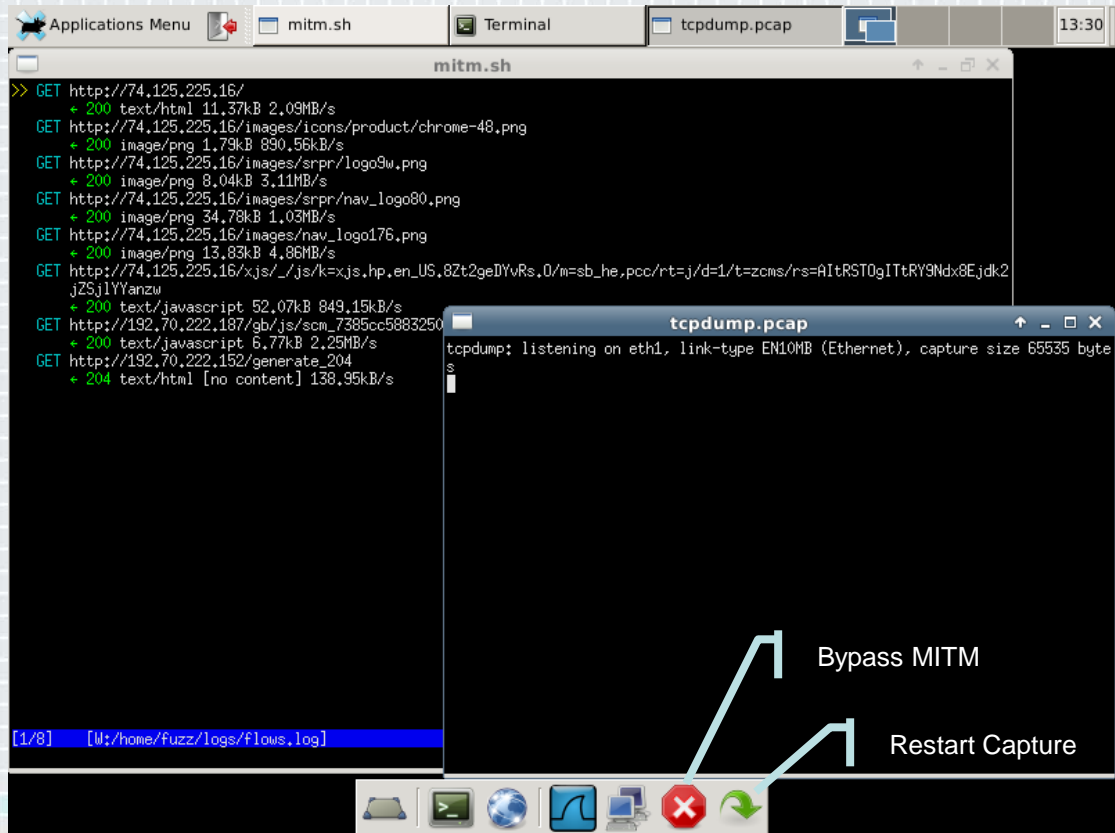
# Just MITM it!

- ◆ Set up a proxy to modify content as it's transferred
- ◆ Problem: Installer isn't proxy-aware!



# Solution: CERT Tapioca

- ◆ Transparent Proxy Capture Appliance
- ◆ UbuFuzz + iptables + mitmproxy



```

Applications Menu  mitm.sh  Terminal  tcpdump.pcap  13:30
mitm.sh
>> GET http://74.125.225.16/
+ 200 text/html 11.37kB 2.09MB/s
GET http://74.125.225.16/images/icons/product/chrome-48.png
+ 200 image/png 1.79kB 890.56kB/s
GET http://74.125.225.16/images/srpr/logo9w.png
+ 200 image/png 8.04kB 3.11MB/s
GET http://74.125.225.16/images/srpr/nav_logo80.png
+ 200 image/png 34.78kB 1.03MB/s
GET http://74.125.225.16/images/nav_logo176.png
+ 200 image/png 13.83kB 4.86MB/s
GET http://74.125.225.16/xjs/_/js/k=xjs.hp.en_US.8Zt2geIYvRs.0/m=sb_he.pcc/rt=j/d=1/t=zcms/rs=AItrST0gITtRY9Mdx8Ejdk2jZ5j1Yyanzw
+ 200 text/javascript 52.07kB 849.15kB/s
GET http://192.70.222.187/gb/js/scn_7385cc5883250
+ 200 text/javascript 6.77kB 2.25MB/s
GET http://192.70.222.152/generate_204
+ 204 text/html [no content] 138.95kB/s

[1/8] [W:/home/fuzz/logs/flows.log]
tcpdump.pcap
tcpdump: listening on eth1, link-type EN10MB (Ethernet), capture size 65535 bytes
s

```

# CERT Tapioca

## CERT Tapioca

CERT Tapioca is a network-layer man-in-the-middle (MITM) proxy VM that is based on UbuFuzz and is preloaded with [mitmproxy](#). CERT Tapioca is available in OVA format, which should be compatible with a range of virtualization products, including VMware, VirtualBox, and others.

The primary modes of operation are

### 1) Checking for apps that fail to validate certificates:

Simply associate device to access point or connect to network and perform the activity. Any logged https traffic is from software that fails to check for a valid SSL chain.

### 2) Investigating traffic of any http/https traffic:

Install the root CA of the MITM software that you are using into the OS of the device that you are testing.

Download CERT Tapioca.

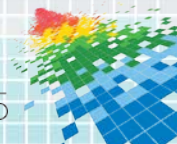
 Download

## Related Blog Posts

[Finding Android SSL Vulnerabilities with CERT Tapioca](#)

[Announcing CERT Tapioca for MITM Analysis](#)

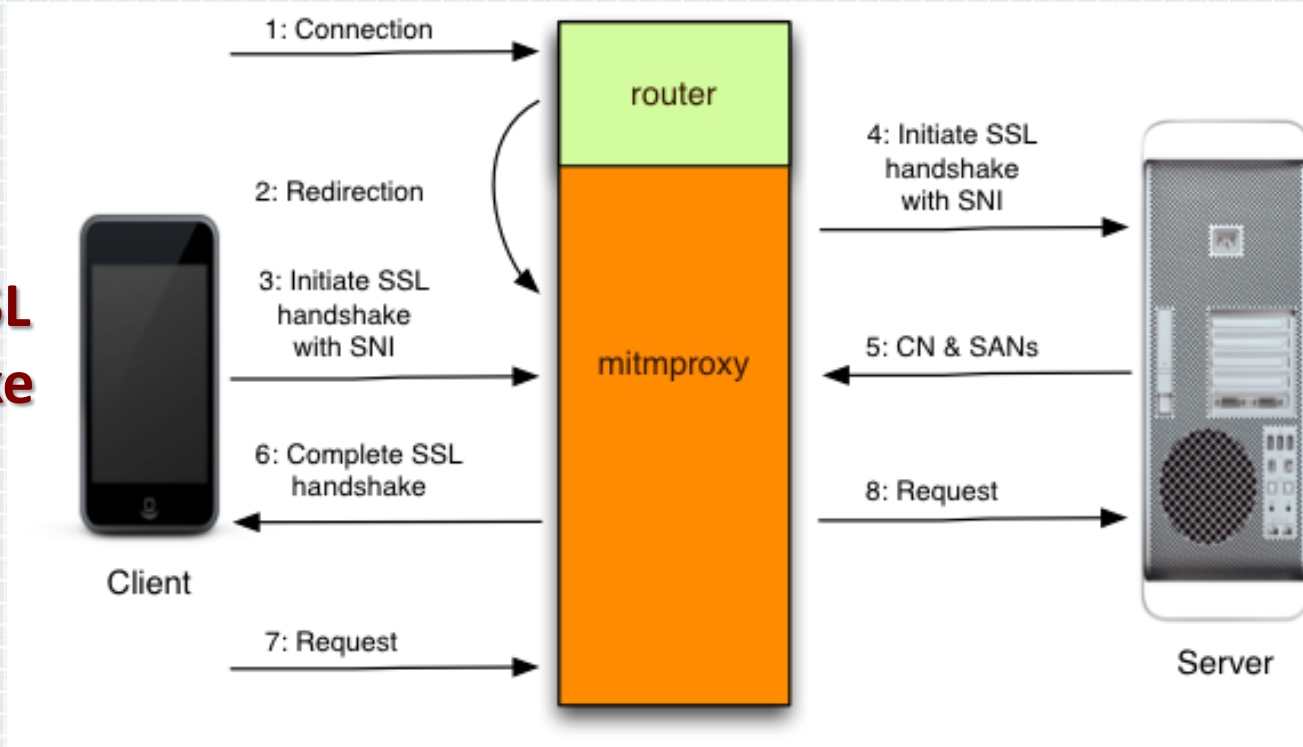
<http://www.cert.org/vulnerability-analysis/tools/cert-tapioca.cfm>



# How it works

## I can see everything if the client doesn't validate SSL

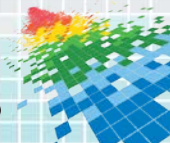
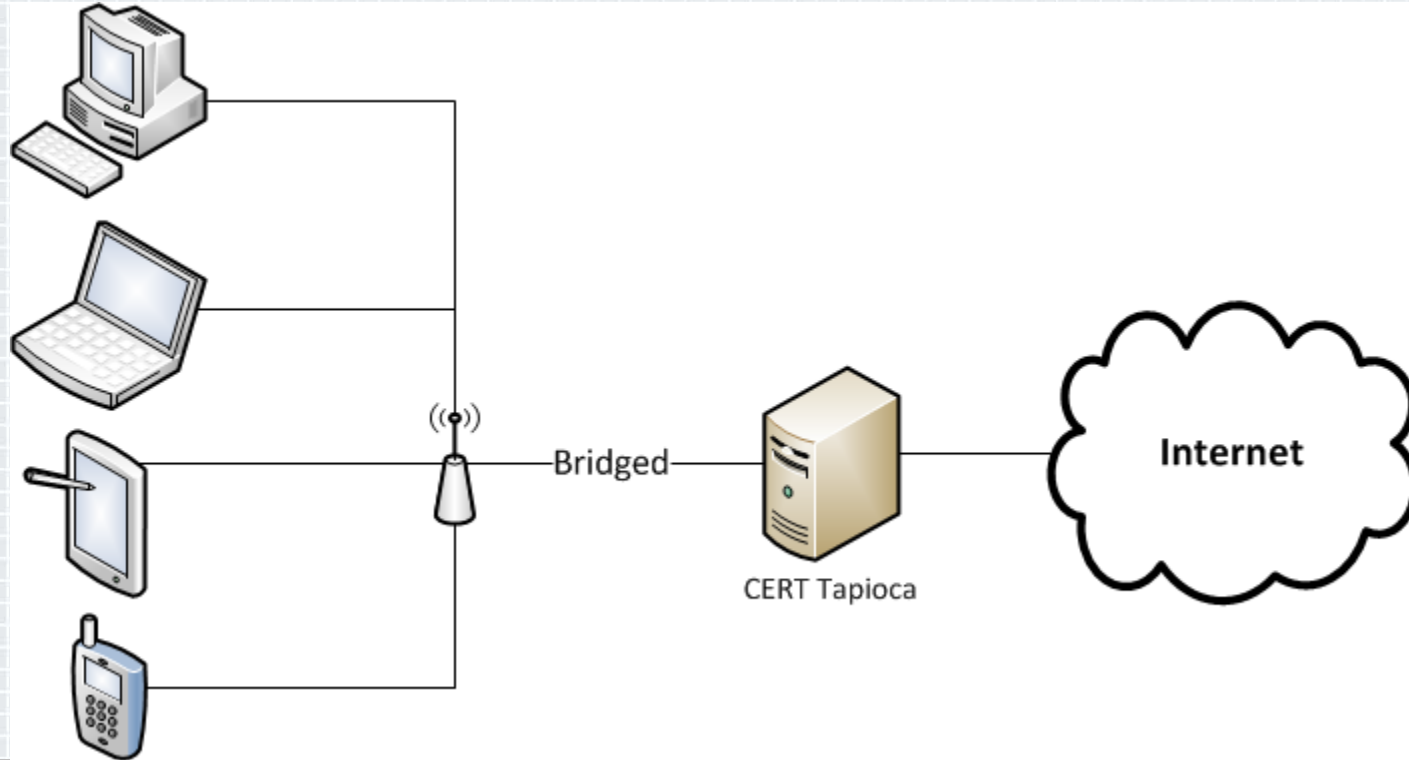
**Invalid SSL handshake**



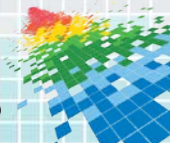
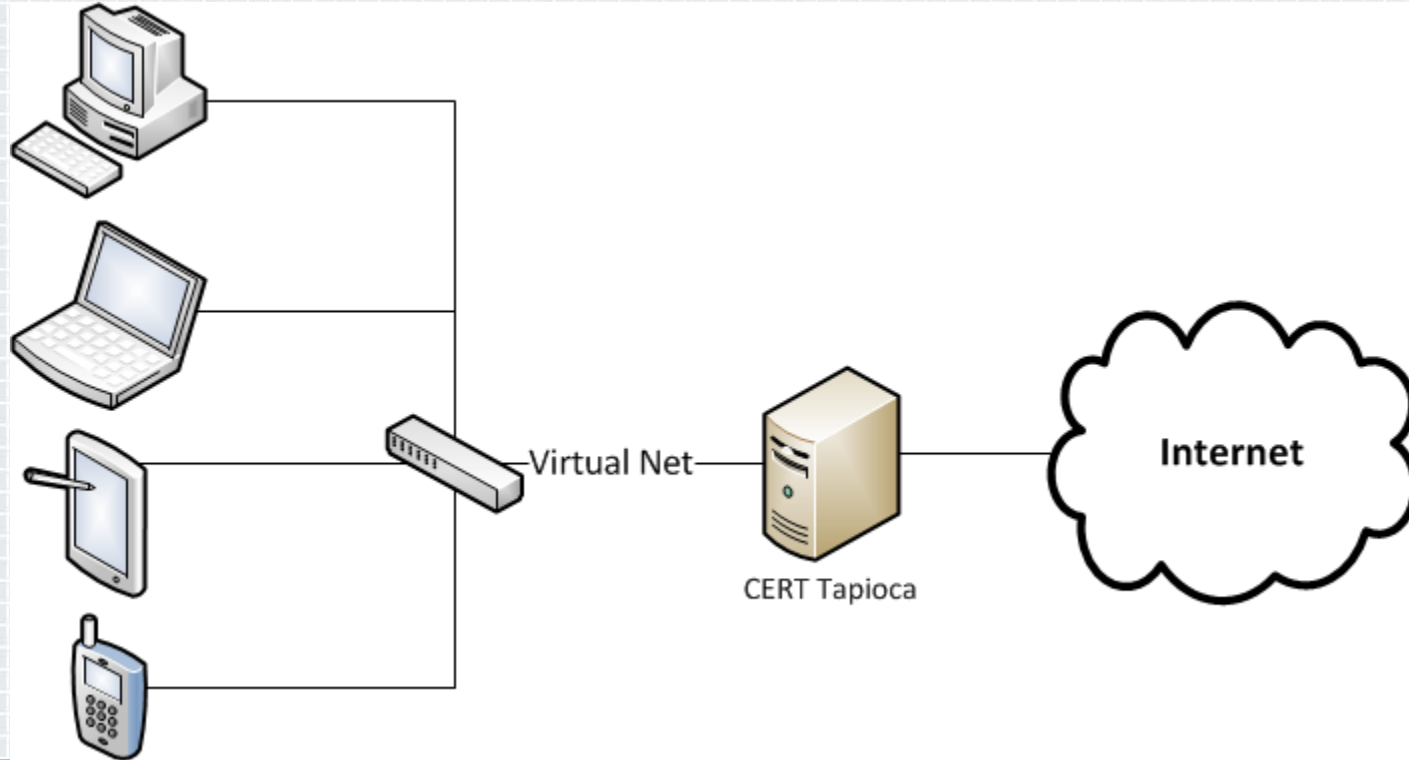
**Valid SSL handshake**



# Tapioca architecture

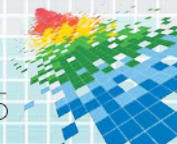


# Tapioca architecture



# Investigating Android

- ◆ Use a phone and a wireless access point



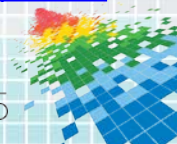
# Improvement #1

## ◆ Virtualization and Automation

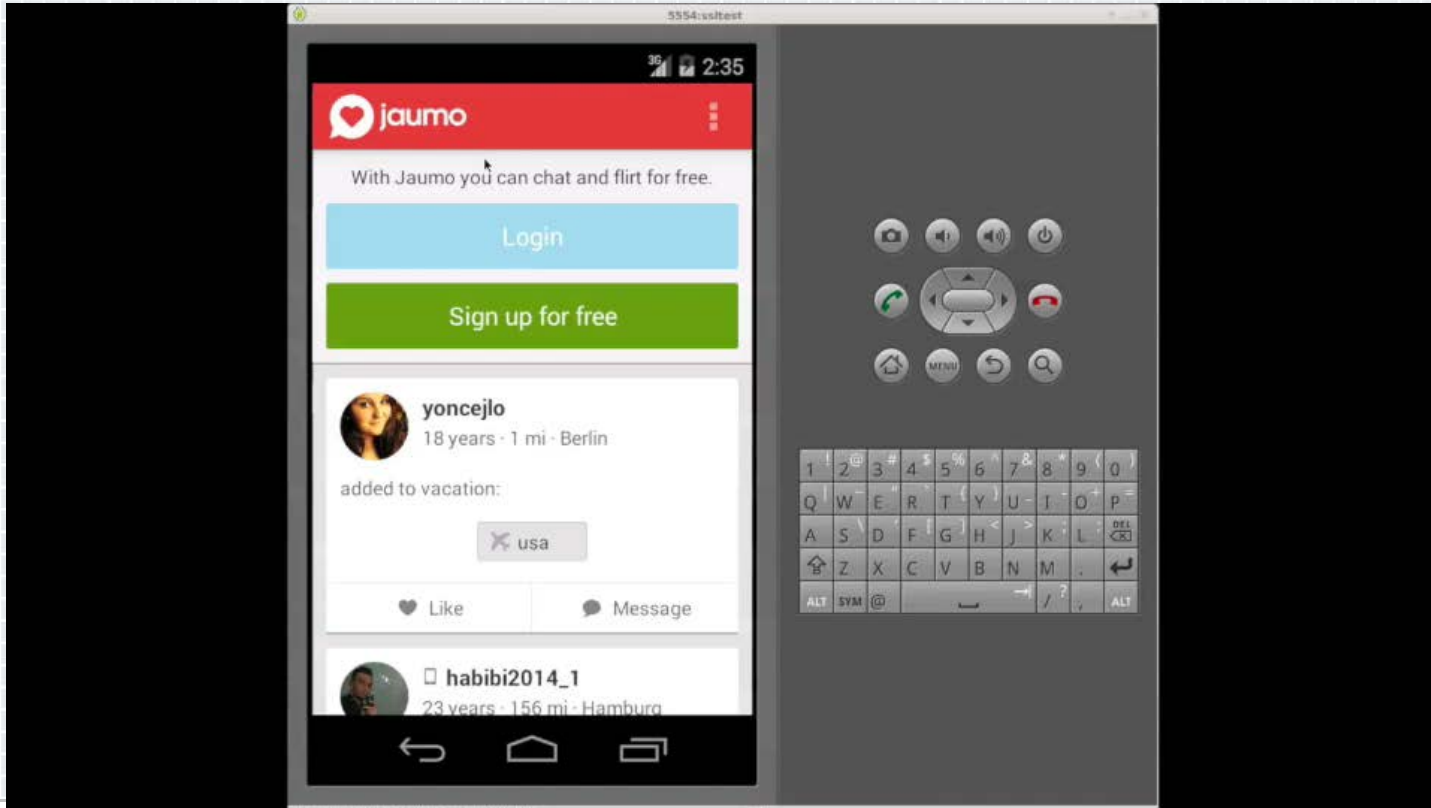
- google-play-crawler
- VMware
- Android SDK
- AVD
- Monkeyrunner
- Monkey

## ◆ Now I can test when I sleep!

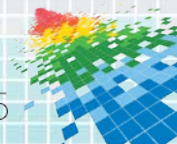
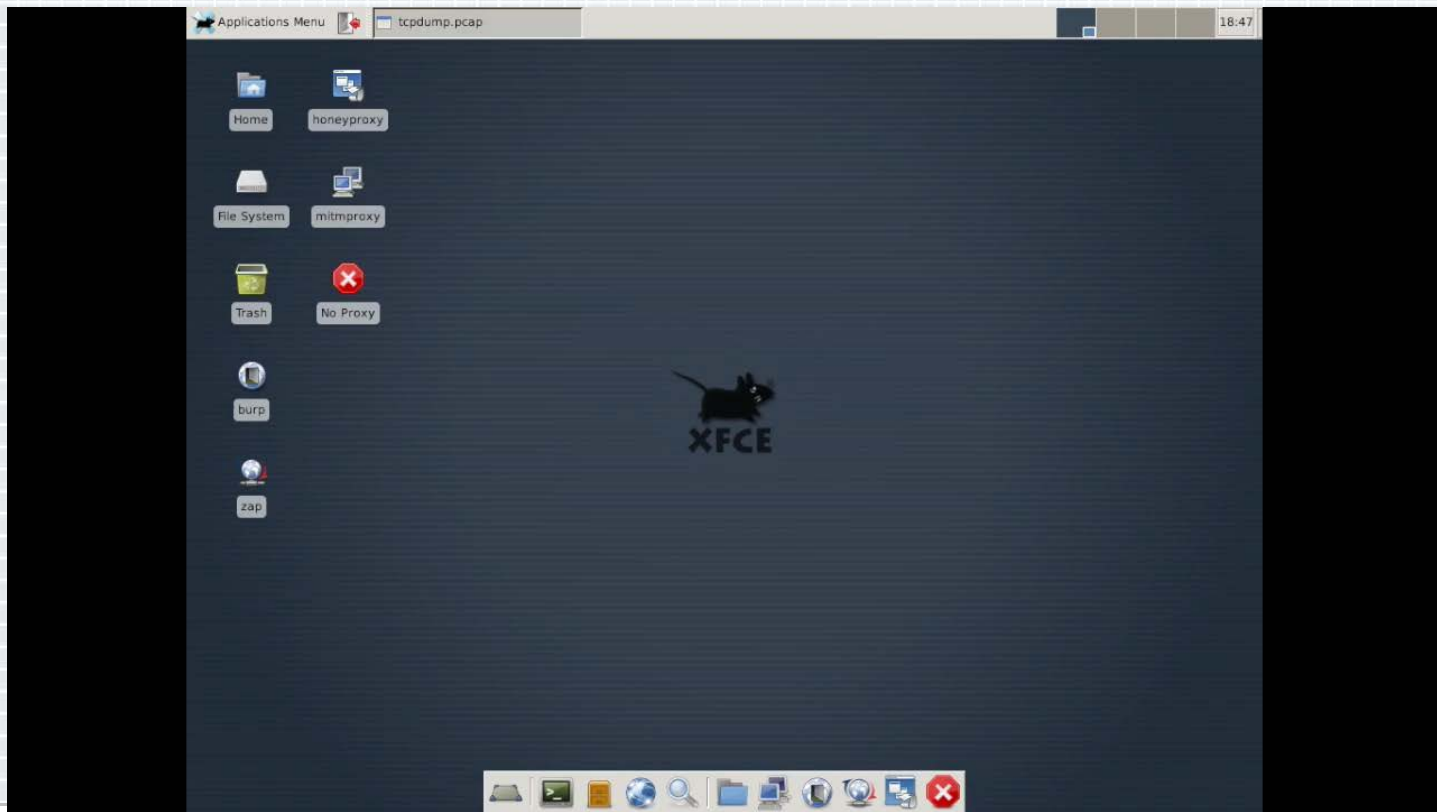
<https://github.com/Akdeniz/google-play-crawler>  
[http://developer.android.com/tools/help/monkeyrunner\\_concepts.html](http://developer.android.com/tools/help/monkeyrunner_concepts.html)  
<http://developer.android.com/tools/help/monkey.html>  
<http://www.cert.org/blogs/certcc/post.cfm?EntryID=204>



# Automated Android

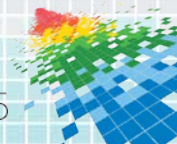


# CERT Tapioca



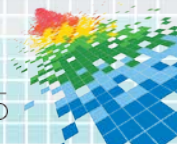
# Improvement #2

- ◆ Parallelization
- ◆ Rather than 1 Android VM and 1 Tapioca VM, what about 20 of each?
- ◆ Now I can test 20x faster!



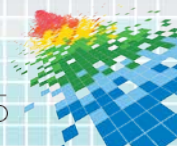
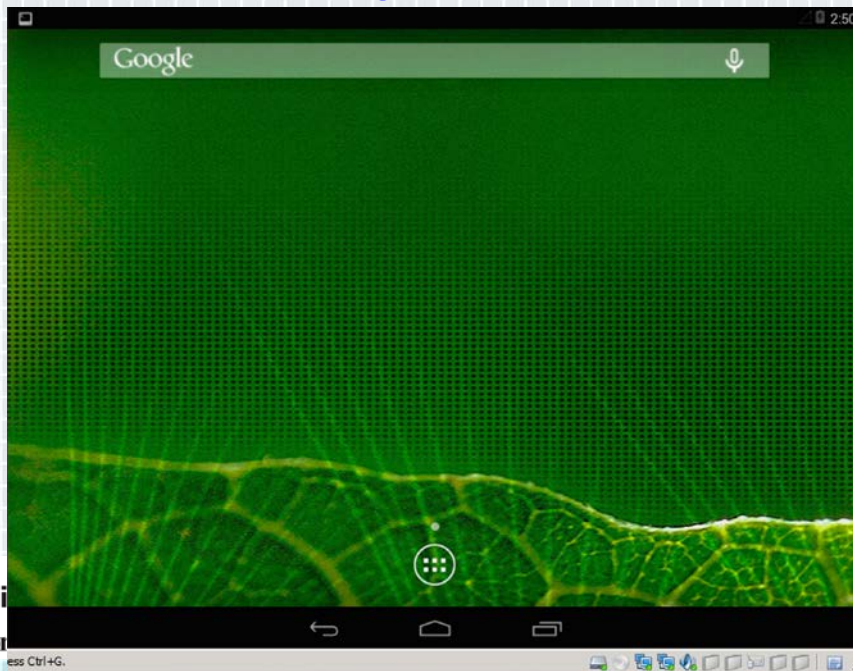
# Android emulation annoyance

- ◆ ARM Android emulation is slow. Very slow.
- ◆ x86 Android emulation is fast (~15x faster), IFF you have a KVM-enabled Linux kernel.



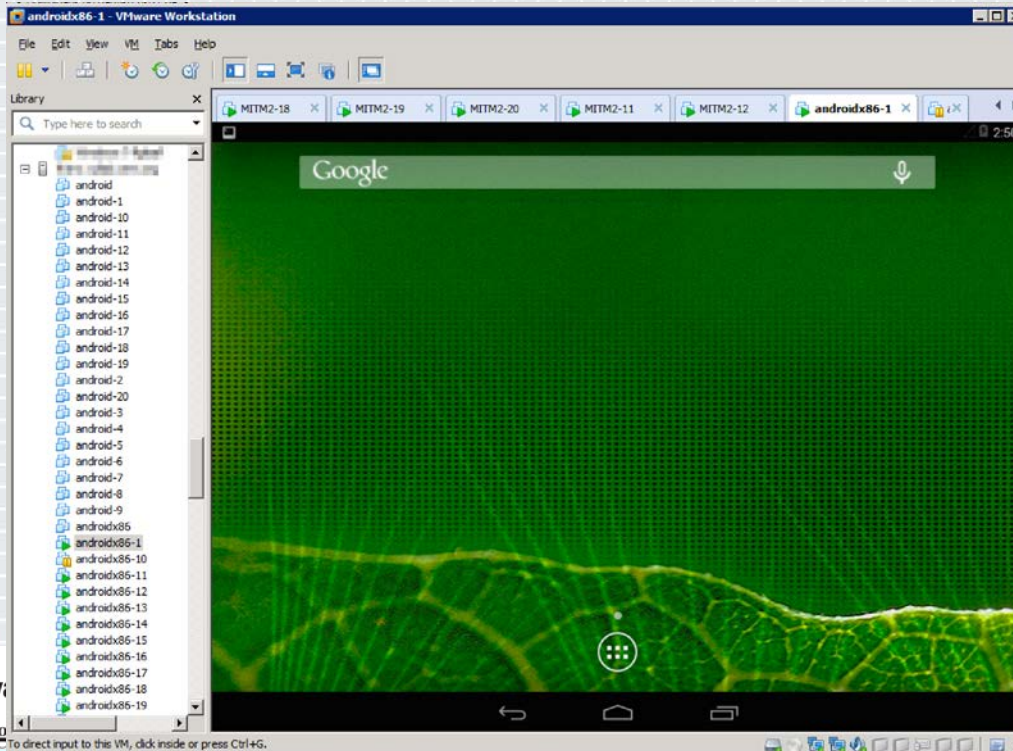
# Improvement #3

- ◆ Solution: x86 Android in a VM (not an emulator):
- ◆ <http://www.android-x86.org/>

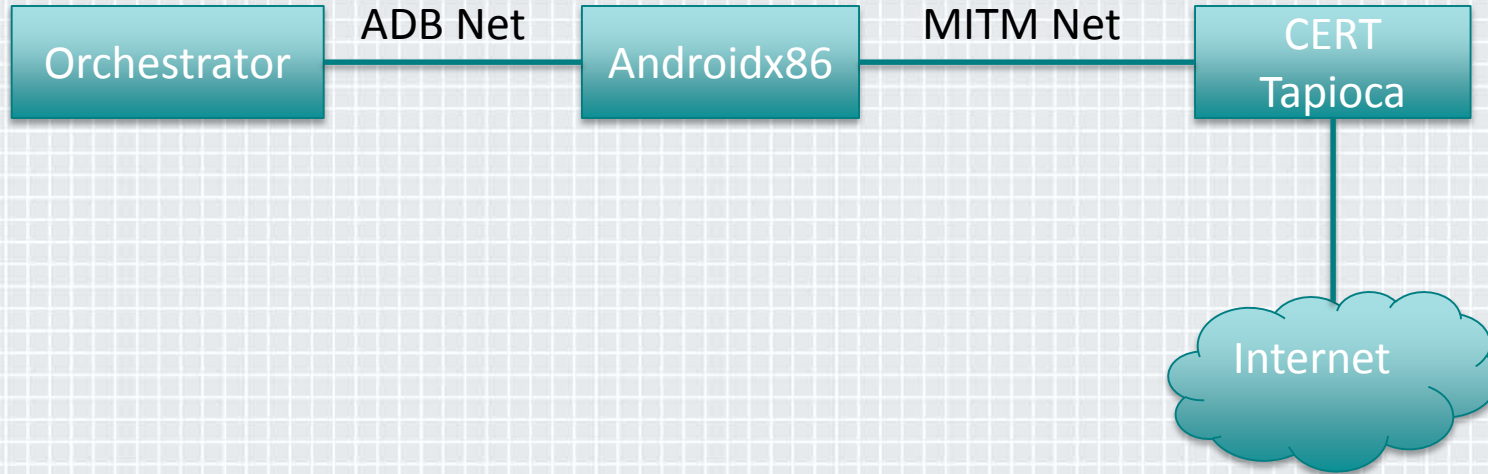


# Improvement #4

- ◆ Let's make 20 of them!



# Androidx86 SSL Test Architecture



# Automation of 20 VMs

```

192.168.0.109:5555
adb failed Trying again...
Connecting again to 192.168.0.109:5555
Already connected to 192.168.0.109:5555
293 KB/s (3246147 bytes in 2.265s)
    pkg: /data/local/tmp/con.ft451_jerusalem.apk
Success
Launching con.ft451_jerusalem.apk
Already connected to 192.168.0.109:5555
Starting: Intent { cmp=com.ft451_jerusalem/.jerusalem }
Exit status: 0
    sx3.sh
    at java.lang.reflect.Method.invoke(Method.java:515)
    at com.android.internal.os.ZygoteInit$MethodAndArgsCaller.run(ZygoteInit.java:775)
    at com.android.internal.os.ZygoteInit.main(ZygoteInit.java:935)
    at dalvik.system.NativeStart.main(Native Method)
Monkey aborted due to error.
Events injected: 461
Sending rotation degree=0, persist=false
Dropped: keys=2 pointer=0 trackball=0 flippers=0 rotations=0
Network stats: elapsed time=4293ms (0ms mobile, 0ms wifi, 4293ms not connecte
System appears to have crashed at event 461 of 500 using seed 1413485868941
Exit status: 0
192.168.0.109:5555
Stopping capture
    sx70.sh
Connecting again to 192.168.0.110:5555
Already connected to 192.168.0.110:5555
355 KB/s (3784883 bytes in 12.589s)
    pkg: /data/local/tmp/con.ddigit_attackpops0095.apk
Success
Launching con.ddigit_attackpops0095.apk
Already connected to 192.168.0.110:5555
Starting: Intent { cmp=com.ddigit_attackpops0095/.AttackPops }
Exit status: 0
192.168.0.110:5555
Exiting...
    sx4.sh
Reverting VM
Starting VM
Restarting captures
Connecting to Android:66-4 : 192.168.0.104
Connected to 192.168.0.104:5555
Already connected to 192.168.0.104:5555
Exit status: 0
Installing nl.chirio.UniProt.apk to 192.168.0.104:5555
Already connected to 192.168.0.104:5555
Error: device offline
Error: device offline
Error: device offline
- waiting for device -
adb failed /data/local/tmp/con.concept.attakspring.apk, No such file or dir
Exit status: 1
192.168.0.102:5555
adb failed Trying again...
Connecting again to 192.168.0.102:5555
Already connected to 192.168.0.102:5555
    sx2.sh
Connecting to Android:66-2 : 192.168.0.102
Connected to 192.168.0.102:5555
Already connected to 192.168.0.102:5555
Exit status: 0
192.168.0.102
Installing com.concept.attakspring.apk to 192.168.0.102:5555
Already connected to 192.168.0.102:5555
Error: device offline
Error: device offline
Error: device offline
- waiting for device -
adb failed /data/local/tmp/con.concept.attakspring.apk, No such file or dir
Exit status: 1
192.168.0.102:5555
adb failed Trying again...
Connecting again to 192.168.0.102:5555
Already connected to 192.168.0.102:5555
    sx11.sh
:Sending Touch (ACTION_UP): 0:(329,0,108,0)
:Sending Touch (ACTION_UP): 0:(243,50495,121,57026)
:Sending Touch (ACTION_DOWN): 0:(383,0,545,0)
// (Calendar: time=2014-10-10 02:52:27.274 system uptime=259574)
// Sending event #400
:Sending Touch (ACTION_UP): 0:(357,89369,500,51605)
:Sending Touch (ACTION_DOWN): 0:(107,0,457,0)
:Sending Touch (ACTION_UP): 0:(53,282746,411,63348)
:Sending Trackball (ACTION_MOVE): 0:(-5,0,4,0)
:Sending Touch (ACTION_DOWN): 0:(514,0,238,0)
:Sending Touch (ACTION_UP): 0:(925,5926,238,36576)
:Sending Trackball (ACTION_MOVE): 0:(2,0,4,0)
:Sending Trackball (ACTION_MOVE): 0:(-4,0,1,0)
Events { intent:action=android.intent.action.MAIN;category=android.intent_cate
gory.LAUNCHER;launchFlags=0x00000000;component=com.appexpress.joeslaurservice/com
.appexpress.LaunchActivity;and
// Allowing start of Intent { act=android.intent.action.MAIN cat=[android.i
nt.category.LAUNCHER] cmp=com.appexpress.joeslaurservice/com.appexpress.Launch
Activity } in package com.appexpress.joeslaurservice
:Sending Trackball (ACTION_MOVE): 0:(0,0,-5,0)
    
```

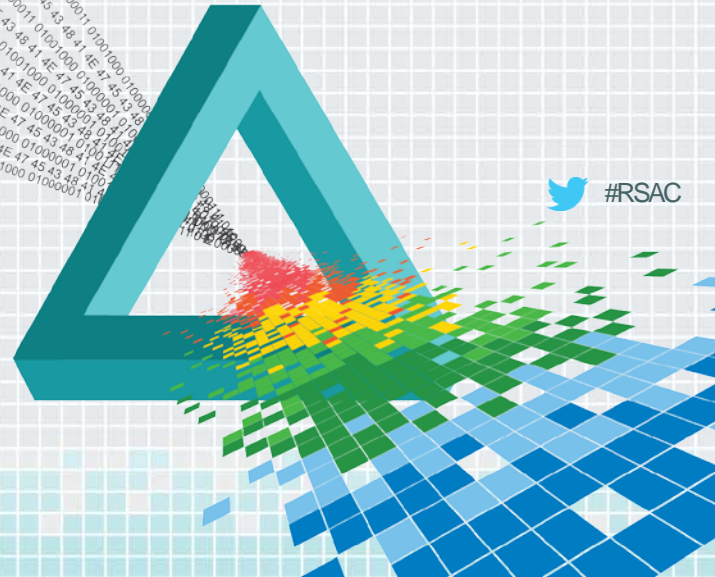


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

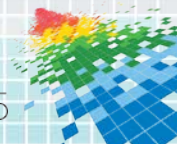
## Android SSL Coordination

*This one's optimistic*



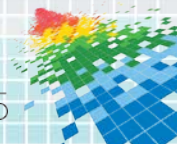
# Prior SSL Investigations

- ◆ Why Eve and Mallory Love Android: An Analysis of Android SSL (In)Security
- ◆ October 18, 2012 - Sascha Fahl, Marian Harbach, Thomas Muders, Matthew Smith, Lars Baumgärtner, Bernd Freisleben
- ◆ <http://android-ssl.org/files/p50-fahl.pdf>
- ◆ “To evaluate the state of SSL use in Android apps, we downloaded 13,500 popular free apps from Google’s Play Market and studied their properties with respect to the usage of SSL.”
- ◆ No app authors contacted?

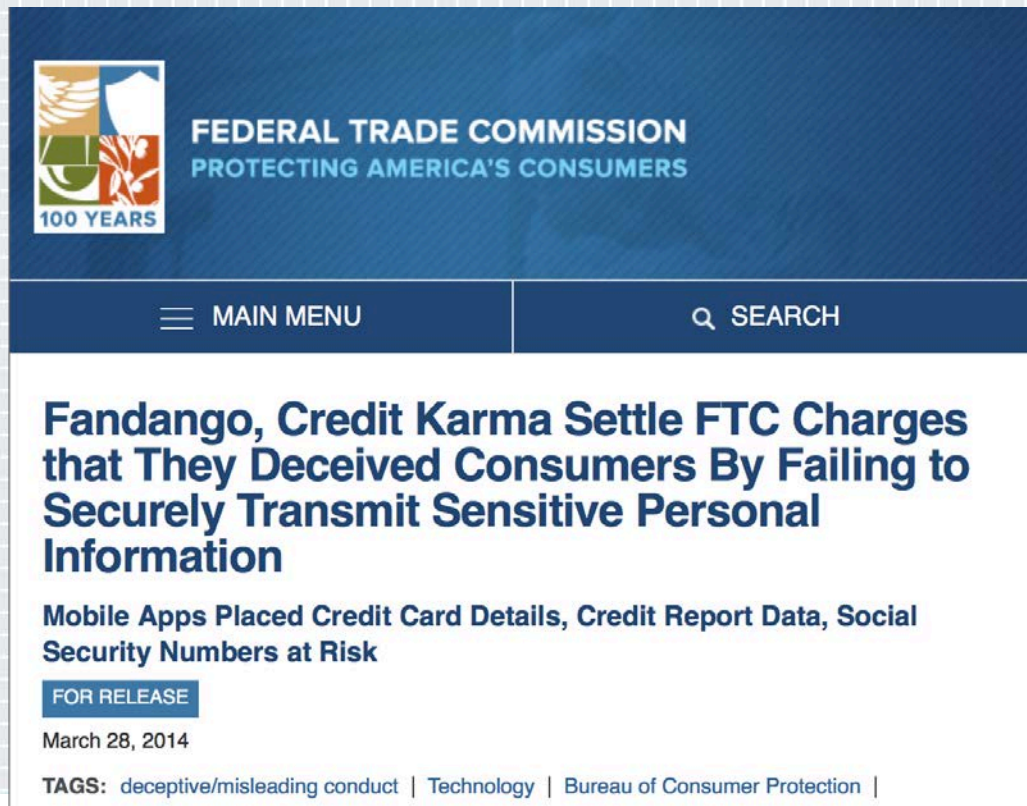


# Prior SSL Investigations


- ◆ SSL Vulnerabilities: Who listens when Android applications talk?
- ◆ August 20, 2014 - Adrian Mettler, Vishwanath Raman, Yulong Zhang
- ◆ <https://www.fireeye.com/blog/threat-research/2014/08/ssl-vulnerabilities-who-listens-when-android-applications-talk.html>
- ◆ “We reviewed the 1,000 most-downloaded free applications in the Google Play store as of July 17, 2014.”
- ◆ No app authors contacted?



# Prior SSL Investigations



The screenshot shows the top portion of a Federal Trade Commission (FTC) press release page. At the top left is the FTC logo, which includes a shield and the text "100 YEARS". To the right of the logo is the text "FEDERAL TRADE COMMISSION" and "PROTECTING AMERICA'S CONSUMERS". Below this is a navigation bar with a "MAIN MENU" link and a "SEARCH" button. The main content area features a large, bold headline: "Fandango, Credit Karma Settle FTC Charges that They Deceived Consumers By Failing to Securely Transmit Sensitive Personal Information". Below the headline is a sub-headline: "Mobile Apps Placed Credit Card Details, Credit Report Data, Social Security Numbers at Risk". A blue box with the text "FOR RELEASE" is positioned above the date "March 28, 2014". At the bottom of the page, there are tags: "TAGS: deceptive/misleading conduct | Technology | Bureau of Consumer Protection |".

 **FEDERAL TRADE COMMISSION**  
PROTECTING AMERICA'S CONSUMERS  
100 YEARS

☰ MAIN MENU      🔍 SEARCH

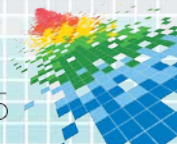
## Fandango, Credit Karma Settle FTC Charges that They Deceived Consumers By Failing to Securely Transmit Sensitive Personal Information

Mobile Apps Placed Credit Card Details, Credit Report Data, Social Security Numbers at Risk

**FOR RELEASE**

March 28, 2014

TAGS: deceptive/misleading conduct | Technology | Bureau of Consumer Protection |



# Notify Affected Authors

Hello,

This is Will Dormann with the CERT Coordination Center, which is part of Carnegie Mellon University. <<http://www.cert.org/about>>

We've recently been evaluating with CERT Tapioca <<http://www.cert.org/blogs/certcc/post.cfm?EntryID=204>> the use of SSL by Android apps. Through automated testing, we are logging apps that cause traffic to be sent or received over an HTTPS connection that has an invalid SSL certificate chain.

The following application has demonstrated this incorrect behavior:

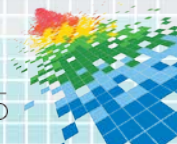
APP\_ID

[https://play.google.com/store/apps/details?id=APP\\_ID](https://play.google.com/store/apps/details?id=APP_ID)

Due to the sheer volume of affected applications, we are currently unable to manually inspect every affected application. However, we are sending notifications to the application authors for further

Investigation.

<SNIP>



# Publish the offending apps

Android apps that fail to validate SSL

File Edit View Insert Format Data Tools Add-ons Help View only

SIGN IN

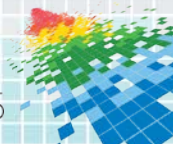
Share

fx | App

	A	B	C	D	E	F	G	H	I
1	App	Link	Genre	Count	Date added	Version tested	malloandroid broken	Library traffic observed	Non-library traffic observed
2	Abode	<a href="#">abode.webview</a>	Tools	100+	2014-09-03	1.7	Maybe		TRUE
3	仲間とつくるホノルルアルバム	<a href="#">adidas.jp.android.runni</a>	Sports	500+	2014-09-03	2.0	TRUE		TRUE
4	Alexis y Fido	<a href="#">air.AlexisyFidoMoblolive</a>	Entertainment	5,000+	2014-09-03	2.4.5	FALSE		
5	Princess Shopping	<a href="#">air.android.PrincessShc</a>	Family	100,000+	2014-09-03	2.0	TRUE	TRUE	TRUE
6	Buses de Córdoba	<a href="#">air.AucorsaMobile</a>	Tools	5,000+	2014-09-03	@7F050002	FALSE		
7	Baby Get Up - Kids Care	<a href="#">air.brown.jordansa.getu</a>	Casual	10,000+	2014-09-03	1.0.3	Maybe	TRUE	TRUE
8	REMOVED	<a href="#">air.cloudMobileApp</a>	REMOVED	10,000+	2014-09-03	@7F040001	FALSE		
9	Bingo Bash - Free Bingo Casino	<a href="#">air.com.bilirhymes.bingc</a>	Casino	10,000,000+	2014-09-03	1.31.1	TRUE		TRUE
10	Abduction Stacker Free	<a href="#">air.com.chewygames.ai</a>	Casual	50+	2014-09-03	1.0.7	Maybe	TRUE	TRUE
11	Comca Catalog	<a href="#">air.com.comcasystems.ai</a>	REMOVED	10+	2014-09-03	@7F040001	FALSE		
12	Westmoreland Water FCU	<a href="#">air.com.creditunionhom</a>	Finance	50+	2014-09-03	1.2.0	Maybe		TRUE
13	Michael Baker FCU	<a href="#">air.com.creditunionhom</a>	Finance	10+	2014-09-03	1.2.0	Maybe		TRUE
14	Flick a Trade	<a href="#">air.com.cygnecode.fat</a>	Finance	5,000+	2014-09-03	3.3	TRUE		TRUE
15	Hidden Memory - Aladdin FREE!	<a href="#">air.com.differencgame</a>	Casual	10,000+	2014-09-03	1.0.31	TRUE	TRUE	TRUE
16	Hidden Object Mystery	<a href="#">air.com.differencgame</a>	Casual	50,000+	2014-09-03	1.0.65	TRUE	TRUE	TRUE
17	Hidden Object - Alice Free	<a href="#">air.com.differencgame</a>	Casual	10,000+	2014-09-03	1.0.17	TRUE	TRUE	TRUE
18	Addison Time Entry	<a href="#">air.com.easySoftwareS</a>	Business	10+	2014-09-03	1.0.0	FALSE		
19	Festa SAAS	<a href="#">air.com.festa.saas</a>	Business	100+	2014-09-03	1.0 RC08	FALSE		
20	SongPop	<a href="#">air.com.freshplanet.gar</a>	Music	10,000,000+	2014-09-03	1.21.2	TRUE		TRUE
21	Sprint jump	<a href="#">air.com.ilaz.applias</a>	Adventure	5+	2014-09-03	1.0	Maybe		TRUE
22	Africa Memory	<a href="#">air.com.klon4enabor4e</a>	Puzzle	100,000+	2014-09-03	1.0.1	TRUE	TRUE	TRUE
23	Return to the Penguin Kingdom	<a href="#">air.com.mediafront_Ret</a>	Lifestyle	100+	2014-09-03	@7F040001	FALSE		
24	Mahjong Galaxy Space Lite	<a href="#">air.com.permadi.mahjor</a>	Puzzle	10,000+	2014-09-03	2.5	TRUE	TRUE	TRUE

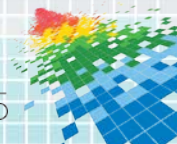
Android SSL Failure Summary | Android App SSL Failures | Android Library SSL Failures

<https://docs.google.com/spreadsheets/d/1t5GXwjw82SyunALVJb2w0zi3FoLRIkFGPc7AMjRF0r4/edit?usp=sharing>



# Listed Applications

- ◆ An app is listed in the spreadsheet when it fails dynamic analysis with CERT Tapioca.
  
- ◆ If an app isn't listed:
  - It was not tested
  - Automation did not trigger HTTPS network traffic
  - It is not vulnerable

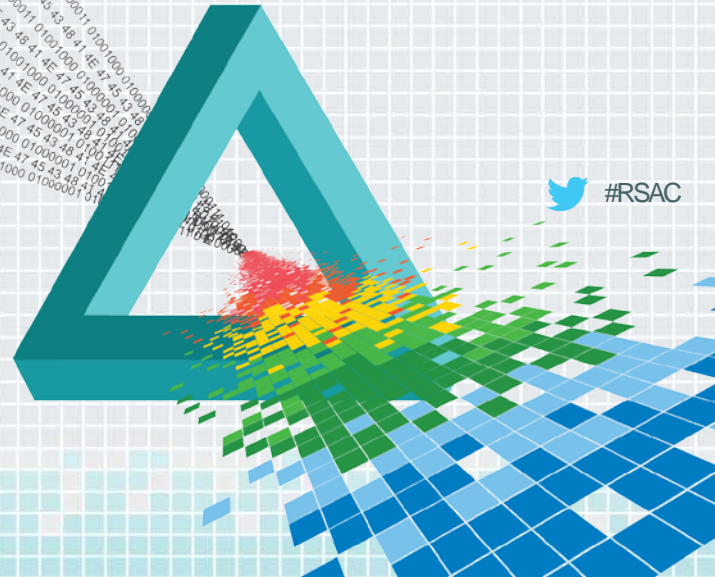


# RSA<sup>®</sup>Conference2015

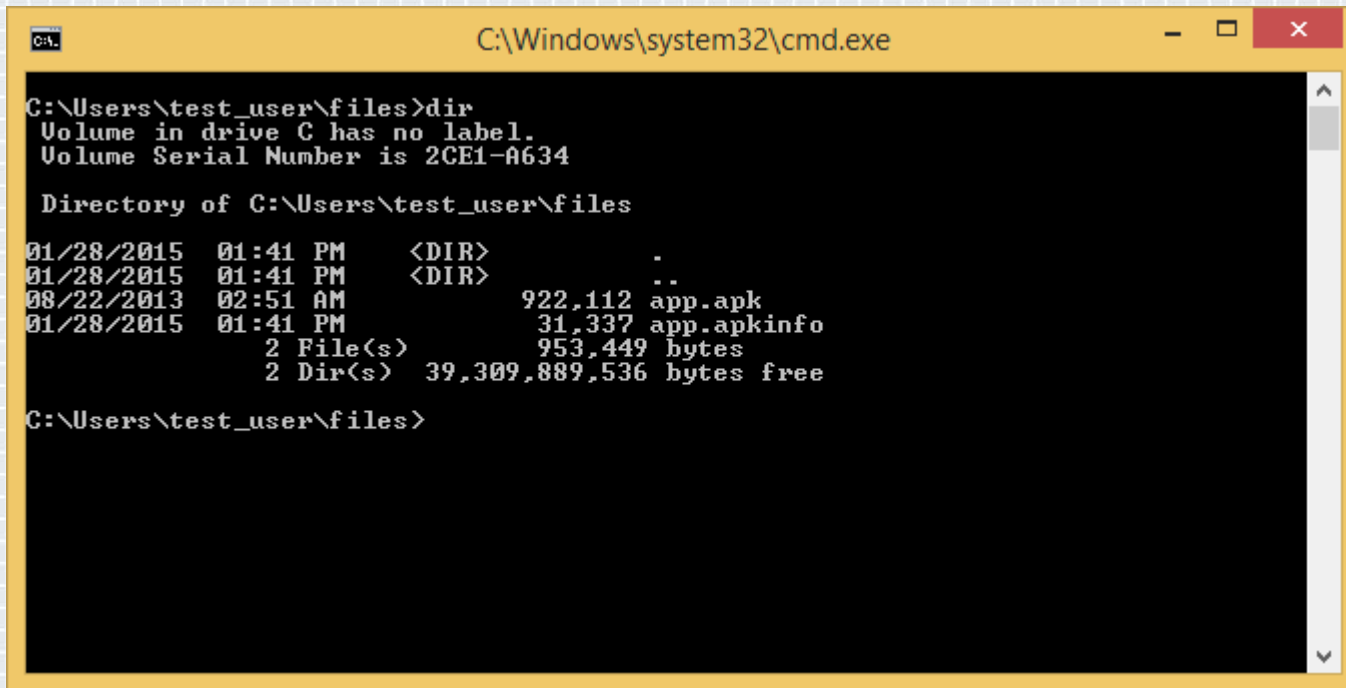
San Francisco | April 20-24 | Moscone Center

## Issues Encountered

*So you've got a million APK files?*



# Windows CMD.EXE



A screenshot of a Windows Command Prompt window titled "C:\Windows\system32\cmd.exe". The window has a yellow title bar and a black background with white text. The text shows the execution of the 'dir' command in the directory "C:\Users\test\_user\files". The output includes volume information for drive C, a directory listing, and a summary of files and free space.

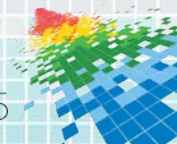
```
C:\Windows\system32\cmd.exe

C:\Users\test_user\files>dir
Volume in drive C has no label.
Volume Serial Number is 2CE1-A634

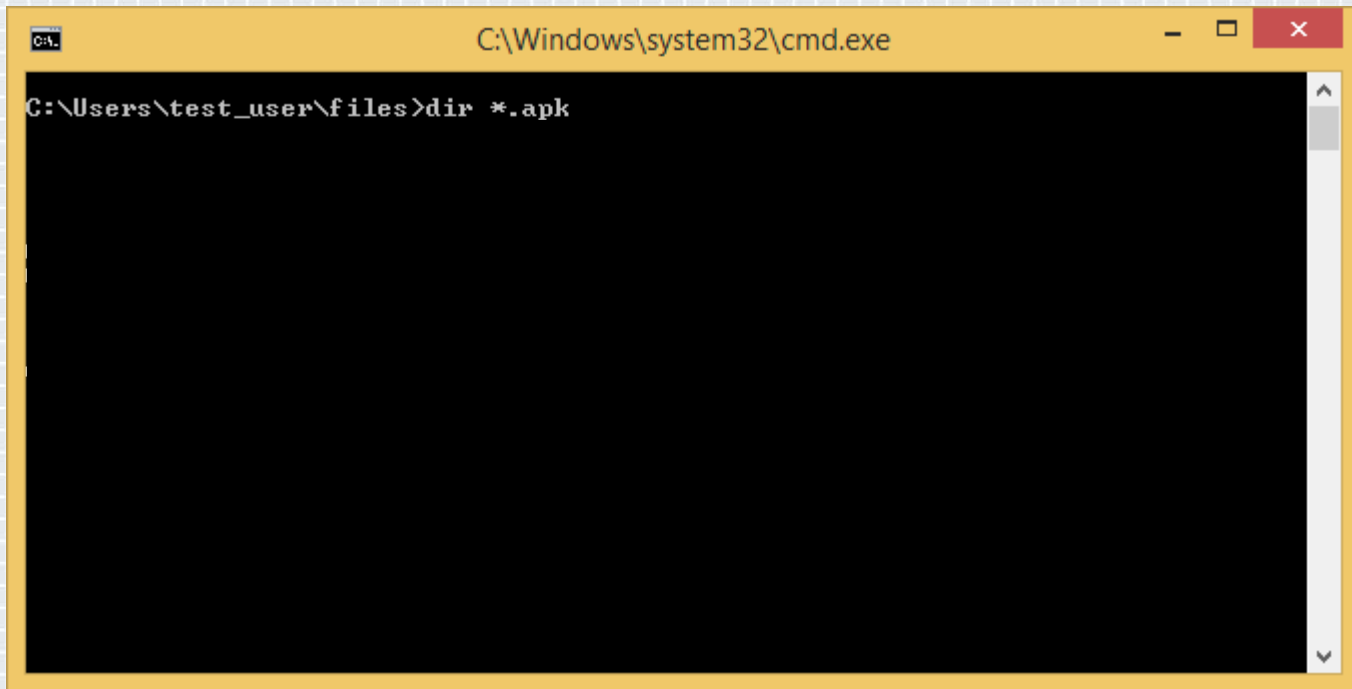
Directory of C:\Users\test_user\files

01/28/2015  01:41 PM    <DIR>          .
01/28/2015  01:41 PM    <DIR>          ..
08/22/2013  02:51 AM              922,112 app.apk
01/28/2015  01:41 PM              31,337 app.apkinfo
                2 File(s)      953,449 bytes
                2 Dir(s)  39,309,889,536 bytes free

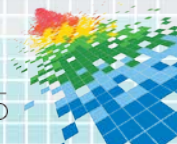
C:\Users\test_user\files>
```



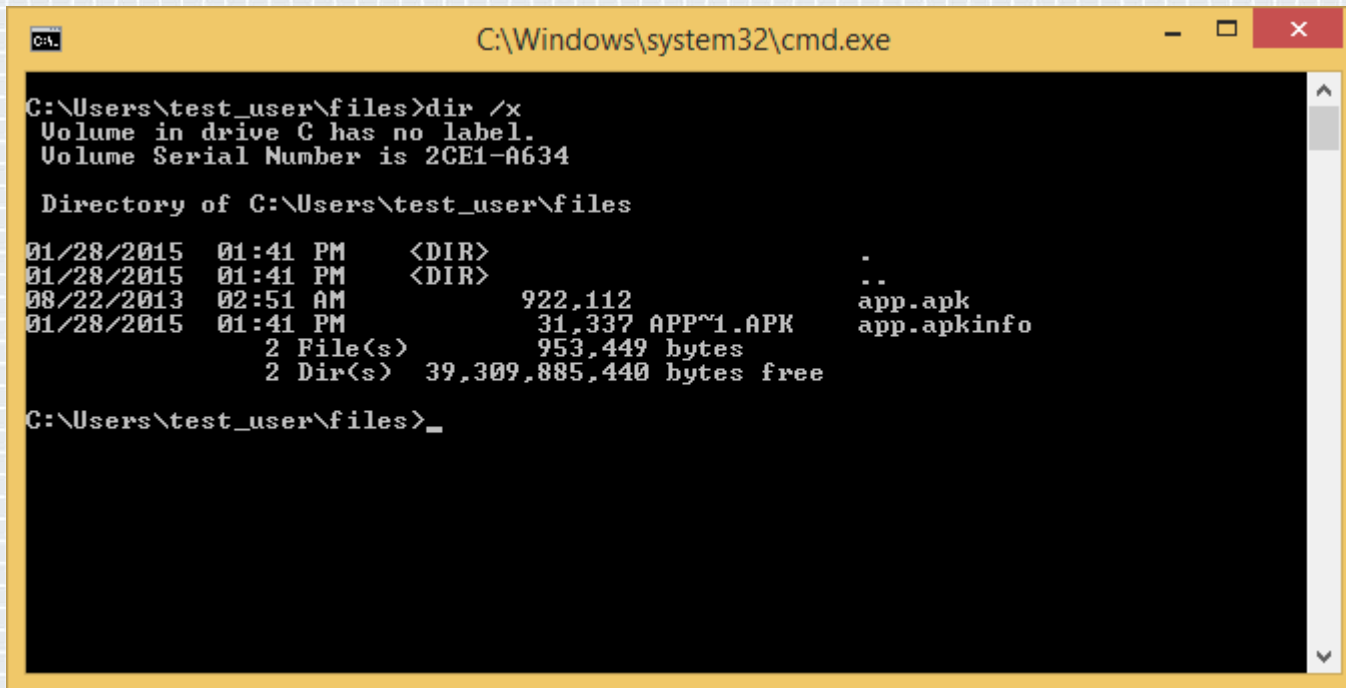
# Windows CMD.EXE



```
C:\Windows\system32\cmd.exe
C:\Users\test_user\files>dir *.apk
```



# Windows CMD.EXE



```
C:\Windows\system32\cmd.exe

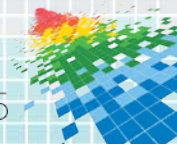
C:\Users\test_user\files>dir /x
Volume in drive C has no label.
Volume Serial Number is 2CE1-A634

Directory of C:\Users\test_user\files

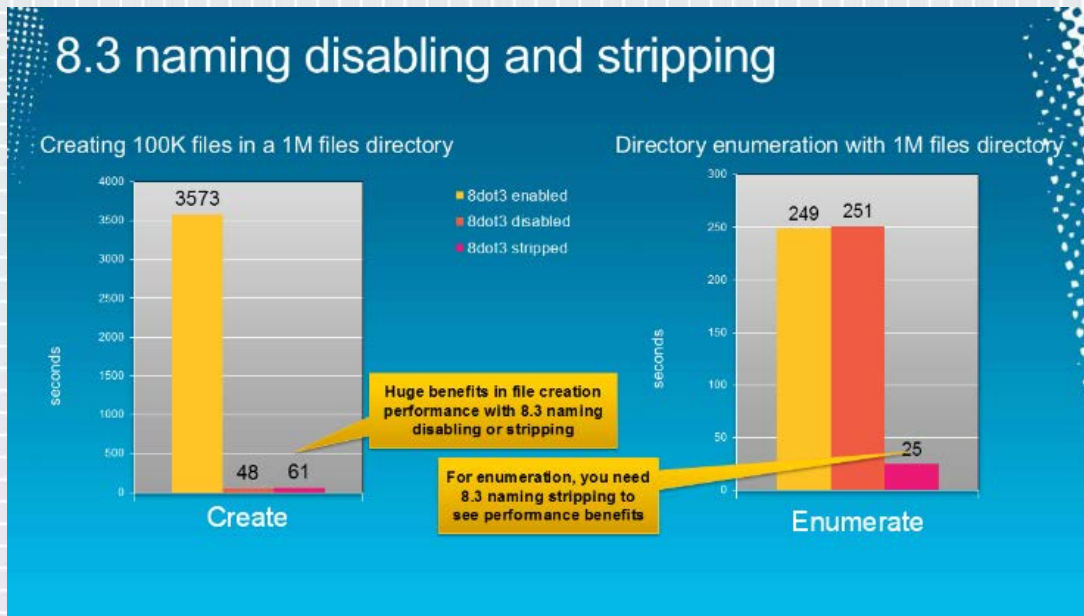
01/28/2015  01:41 PM    <DIR>          .
01/28/2015  01:41 PM    <DIR>          ..
08/22/2013  02:51 AM              922,112      app.apk
01/28/2015  01:41 PM      31,337 APP~1.APK  app.apkinfo
                2 File(s)          953,449 bytes
                2 Dir(s)    39,309,885,440 bytes free

C:\Users\test_user\files>_
```

**THANKS MICROS~1 !!!1!**

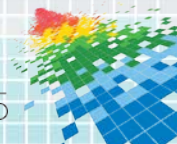


# 8.3 Filenames



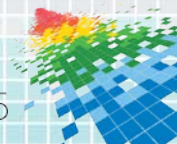
**Note:** Although disabling 8.3 file name creation increases file performance under Windows, some applications (16-bit, 32-bit, or 64-bit) may not be able to find files and directories that have long file names.”

<http://blogs.technet.com/b/josebda/archive/2012/11/13/windows-server-2012-file-server-tip-disable-8-3-naming-and-strip-those-short-names-too.aspx>  
<http://support.microsoft.com/kb/121007>



# Busybox

- ◆ [recursive\\_action \(and thus find\) slow due to \[l\]stat\(\)](#)
- ◆ [Rich Felker Tue, 28 May 2013 21:13:18 -0700](#)
- ◆ Conceptually, the find utility need not perform lstat on each filename unless it's needed for matching criteria. However, find is implemented based on libbb's recursive\_action, which always performs stat or lstat. This makes busybox's find excruciatingly slow compared to GNU find.



# Solution

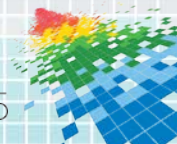
- ◆ Real fileserver with ZFS.

**Bug 197336 - find command cannot see more than 32765 subdirectories when using ZFS ([edit](#))**

Save Changes

**Status:** New ([edit](#))

**Reported:** 2015-02-04 23:19 UTC by [Will Dormann](#)

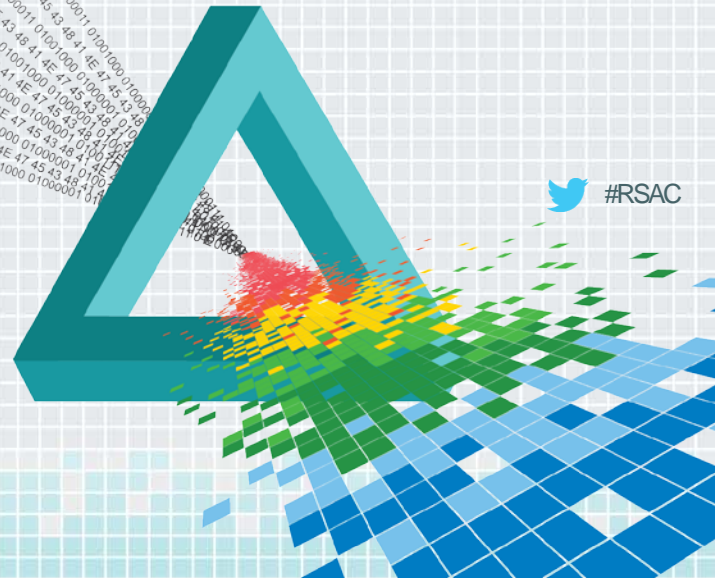


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

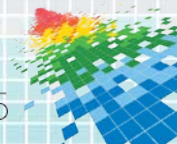
## CVE Fun

*You keep using that word. I do not think  
it means what you think it means.*



# How to track Vulnerabilities?

- ◆ CVE is the de facto standard for tracking vulnerabilities in applications.
- ◆ MITRE, who operates CVE, does not attempt to track all applications with CVE.



# What Makes an App Important?

## 5-10 million installs

## Insecurely retrieves ads

## No CVE assigned



KIM KARDASHIAN: HOLLYWOOD

Glu - January 14, 2015

Adventure

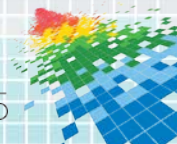
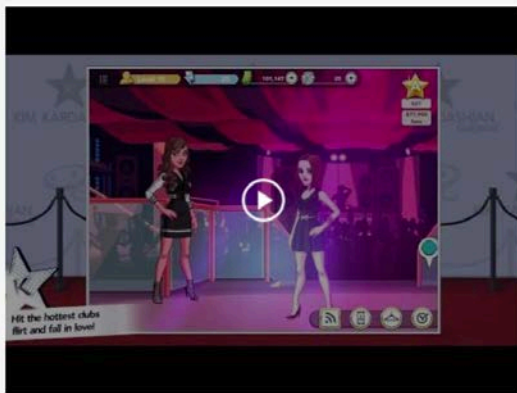
Install

This app is compatible with all of your devices. Offers in-app purchases

510,970

8+1

27307 Recommend this on Google



# What Makes an App Important?

# 1-5 installs

# Insecurely uses paypal

# No CVE assigned



Diretório CNG. PT

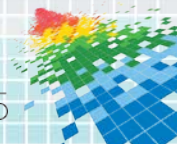
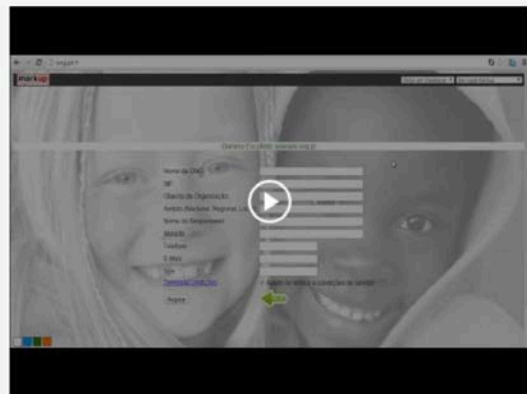
Markup, Up Lda - January 14, 2015

Social

add to Wishlist

This app is compatible with all of your devices.

g+1 Recommend this on Google



# What Makes an App Important?

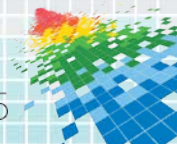
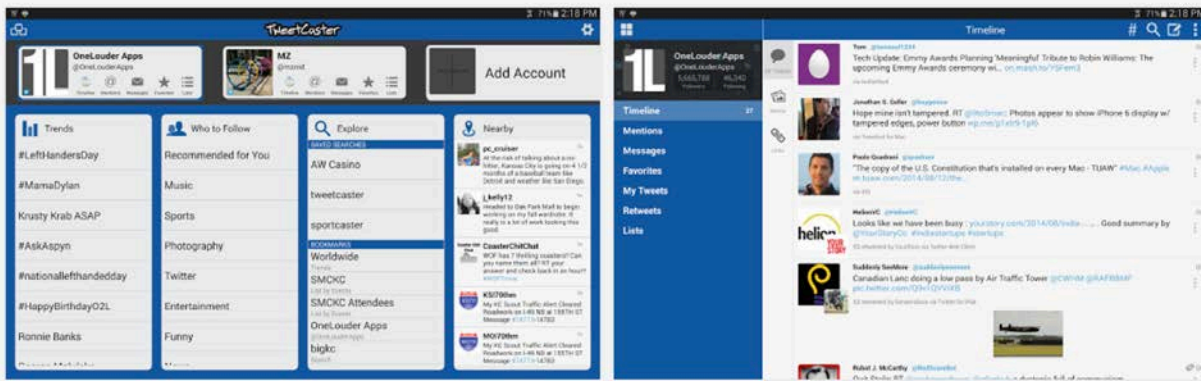


TweetCaster for Twitter  
OneLouders Apps - January 16, 2015  
Sends user/password  
Offers in-app purchases  
502,878  
+71768 Recommend this on Google

# 5-10 million installs

# Sends user/password

# No CVE assigned



# CVE10K



**CVE10K**  
@CVE10K

We released 5-digit CVE-2014-10001 and 6-digit CVE-2014-100001 IDs on January 13, 2015, plus 90 others. Issues, compliments, or concerns welcome.

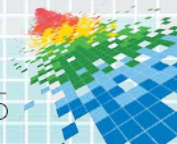
📍 Everywhere

🔗 [cve.mitre.org/cve/identifier...](http://cve.mitre.org/cve/identifier...)

 Tweet to CVE10K

# CVE Assignment

- ◆ Are Android applications CVE-worthy?

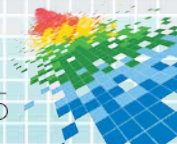


# CVE Assignment

- ◆ Are Android applications CVE-worthy?

- ◆ No\*

\* Maybe, but stop assigning CVEs

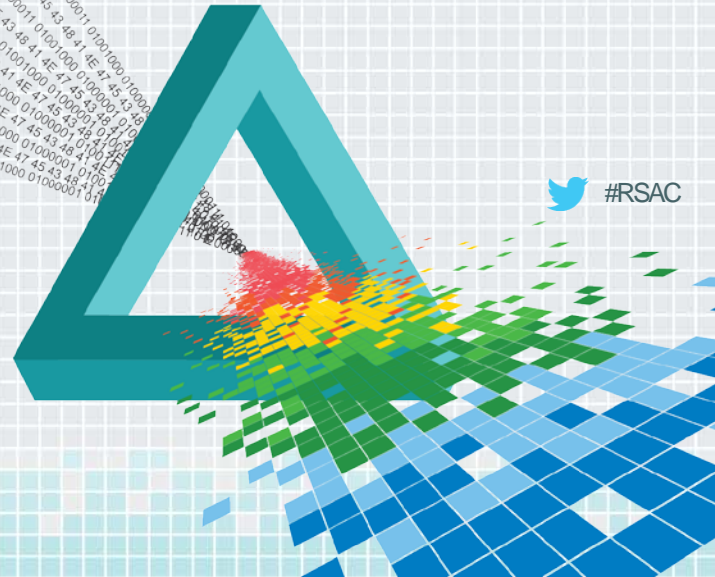


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

## What Makes an Android Developer?

*A pulse*



 #RSAC

# AppsGeyser

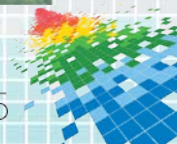


Create an Android App for  
**FREE!**

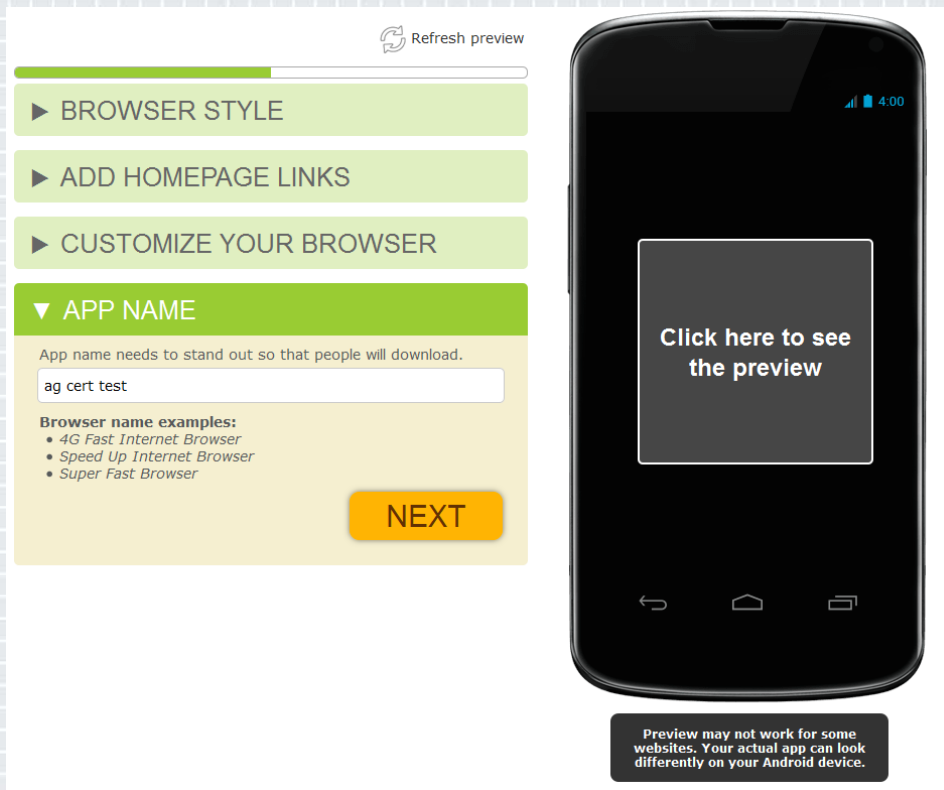
We have 986,081,580 installed Apps & 1,458,468 created Apps ,  
4,147,483,647 ads served

**CREATE NOW!**

Now AppsGeyser is turning app development into something that literally anyone can do" - The Next Web



# AppsGeyser



Refresh preview

- ▶ BROWSER STYLE
- ▶ ADD HOMEPAGE LINKS
- ▶ CUSTOMIZE YOUR BROWSER
- ▼ APP NAME

App name needs to stand out so that people will download.

ag cert test

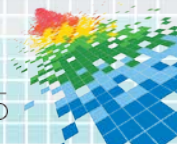
**Browser name examples:**

- 4G Fast Internet Browser
- Speed Up Internet Browser
- Super Fast Browser

NEXT

Click here to see the preview

Preview may not work for some websites. Your actual app can look differently on your Android device.



# VulsGeyser

## Vulnerability Note VU#1680209

AppsGeyser generates Android applications that fail to properly validate SSL certificates

Original Release date: 19 Dec 2014 | Last revised: 07 Jan 2015



Print



Tweet



Send



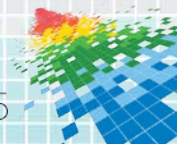
Share

### Overview

AppsGeyser generates applications that fail to properly validate SSL certificates.

### Description

AppsGeyser is an online tool that generates Android applications. At the time of publication of this vulnerability note, the [AppsGeyser website](#) claims to have generated over 1.3 million Android applications. The applications that are generated by AppsGeyser include code that disables SSL certificate validation for HTTPS traffic.



# AppsGeyser Fixed

## Impact

When a victim is using an application generated by AppsGeyser, an attacker on the same network as the Android device may be able to view or modify network traffic that should have been protected by HTTPS. The impact varies based on what the application is doing. Possible outcomes include credential stealing or arbitrary code execution.

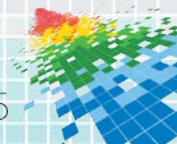
## Solution

### Regenerate affected Android applications

The AppsGeyser application generator has been updated to correctly validate SSL certificates. Any applications that were created before December 24, 2014 should be regenerated.

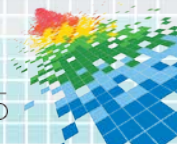
## Vendor Information ([Learn More](#))

Vendor	Status	Date Notified	Date Updated
AppsGeyser	Affected	12 Dec 2014	19 Dec 2014



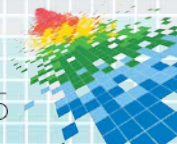
# AppsGeyser Apps

Fred Fuller Oil & Propane	<a href="http://com.wFredFuller">com.wFredFuller</a>	Business	100+
Free 2 Browse	<a href="http://com.wFree2Browse">com.wFree2Browse</a>	Tools	10+
Free Classifieds Pensacola	<a href="http://com.wFreeAds">com.wFreeAds</a>	Shopping	100+
Free Animations Sharing	<a href="http://com.wFreeAnimationsSharing">com.wFreeAnimationsSharing</a>	Entertainment	1,000+
Freebies Junction	<a href="http://com.wFreebiesJunction">com.wFreebiesJunction</a>	Social	100+
FREE Binary Options Signals	<a href="http://com.wFREEBinaryOptionsSignals">com.wFREEBinaryOptionsSignals</a>	Finance	1,000+
FREE Binary Options Strategy	<a href="http://com.wFREEBinaryOptionsStrategy">com.wFREEBinaryOptionsStrategy</a>	Finance	1,000+
Free Career Advice	<a href="http://com.wFreeCareerAdvisor">com.wFreeCareerAdvisor</a>	Business	100+
FREE COPIER SUPPORT COMMUNIT	<a href="http://com.wFREECOPIERSUPPORT">com.wFREECOPIERSUPPORT</a>	Tools	1,000+
FREE Craft and Hobby KINDLES	<a href="http://com.wFREECraftandHobbyKINDLEBOOKS">com.wFREECraftandHobbyKINDLEBOOKS</a>	Books & Reference	1,000+
REMOVED	<a href="http://com.wFreeCreditMonitoringTarget">com.wFreeCreditMonitoringTarget</a>	REMOVED	REMOVED
Freedom1	<a href="http://com.wFreedom1">com.wFreedom1</a>	News & Magazines	10+
FreedomOutpost	<a href="http://com.wFreedomOutpost">com.wFreedomOutpost</a>	News & Magazines	100+
Freedom Wireless	<a href="http://com.wFreedomWireless1">com.wFreedomWireless1</a>	Shopping	1,000+
EURUSD Forex Trading Signals	<a href="http://com.wFREEEURUSDForexTradingSignals">com.wFREEEURUSDForexTradingSignals</a>	Finance	1,000+
FREE Forex Signals	<a href="http://com.wFREEForexSignals">com.wFREEForexSignals</a>	Finance	10,000+
FREE GBPUSD Trading Signals	<a href="http://com.wFREEGBPUSDTradingSignals">com.wFREEGBPUSDTradingSignals</a>	Finance	500+
Free Gift Cards Palace	<a href="http://com.wFreeGiftCardsPalace">com.wFreeGiftCardsPalace</a>	Shopping	1,000+
Free Hermes Bag- Get yours now	<a href="http://com.wFreeHermesBag">com.wFreeHermesBag</a>	Shopping	500+
Latest Hindi Ringtone Free	<a href="http://com.wFreeHindiMovieLatestRingtone">com.wFreeHindiMovieLatestRingtone</a>	Music & Audio	10,000+
Free Insta Likes And Followers	<a href="http://com.wFreeInstaFollowersAndLikes">com.wFreeInstaFollowersAndLikes</a>	Social	500+
Free Keywords Suggestion Tool	<a href="http://com.wFreeKeywordsSuggestionTool">com.wFreeKeywordsSuggestionTool</a>	Tools	100+
Freelanced	<a href="http://com.wFreelanced">com.wFreelanced</a>	Business	100+



# Metova Credit Union Apps

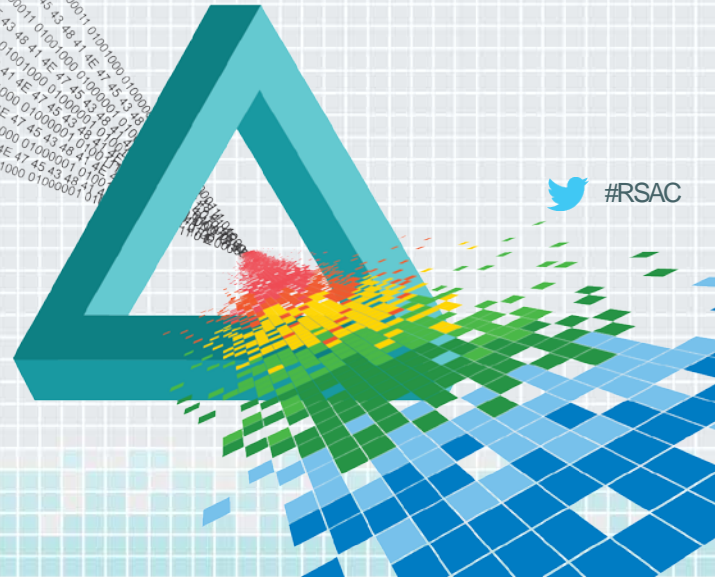
Apex Federal Credit Union	<a href="https://com.metova.cuae.afcu">com.metova.cuae.afcu</a>	Finance	100+
ATL Federal Credit Union	<a href="https://com.metova.cuae.atlfcu">com.metova.cuae.atlfcu</a>	Finance	100+
Bloomington Postal ECU App	<a href="https://com.metova.cuae.bloomingtonpostal">com.metova.cuae.bloomingtonpostal</a>	Finance	10+
Community Credit Union Mobile	<a href="https://com.metova.cuae.ccu">com.metova.cuae.ccu</a>	Finance	500+
Day Air Credit Union	<a href="https://com.metova.cuae.dayair">com.metova.cuae.dayair</a>	Finance	1,000+
Education Personnel FCU	<a href="https://com.metova.cuae.educationpersonnel">com.metova.cuae.educationpersonnel</a>	Finance	100+
Enrichment Federal CU	<a href="https://com.metova.cuae.efcu">com.metova.cuae.efcu</a>	Finance	1,000+
Forest Area FCU Mobile	<a href="https://com.metova.cuae.fafcu">com.metova.cuae.fafcu</a>	Finance	500+
Farm Bureau Family CU	<a href="https://com.metova.cuae.fbcu">com.metova.cuae.fbcu</a>	Finance	50+
Gulf Coast Educators FCU	<a href="https://com.metova.cuae.gcefcu">com.metova.cuae.gcefcu</a>	Finance	1,000+
GeoVista Credit Union Mobile	<a href="https://com.metova.cuae.gvcu">com.metova.cuae.gvcu</a>	Finance	1,000+
Honor Credit Union Mobile	<a href="https://com.metova.cuae.hcu">com.metova.cuae.hcu</a>	Finance	1,000+
La Terre Federal Credit Union	<a href="https://com.metova.cuae.laterrefcu">com.metova.cuae.laterrefcu</a>	Finance	100+
Magnify Credit Union	<a href="https://com.metova.cuae.magcu">com.metova.cuae.magcu</a>	Finance	100+
Mountain Credit Union	<a href="https://com.metova.cuae.mcu">com.metova.cuae.mcu</a>	Finance	1,000+
Memorial Credit Union Mobile	<a href="https://com.metova.cuae.memorial">com.metova.cuae.memorial</a>	Finance	500+
Notre Dame FCU	<a href="https://com.metova.cuae.ndfcu">com.metova.cuae.ndfcu</a>	Finance	1,000+
Partnership Financial CU	<a href="https://com.metova.cuae.ntscu">com.metova.cuae.ntscu</a>	Finance	100+
Oak Trust CU App	<a href="https://com.metova.cuae.oaktrustcu">com.metova.cuae.oaktrustcu</a>	Finance	100+
Postal Family FCU App	<a href="https://com.metova.cuae.postalfamily">com.metova.cuae.postalfamily</a>	Finance	100+



# **RSA**®Conference2015

San Francisco | April 20-24 | Moscone Center

## **Apps That Exist** *And also fail to validate SSL*



 #RSAC

# Mobile Network Signal Booster



## Mobile Network Signal Booster

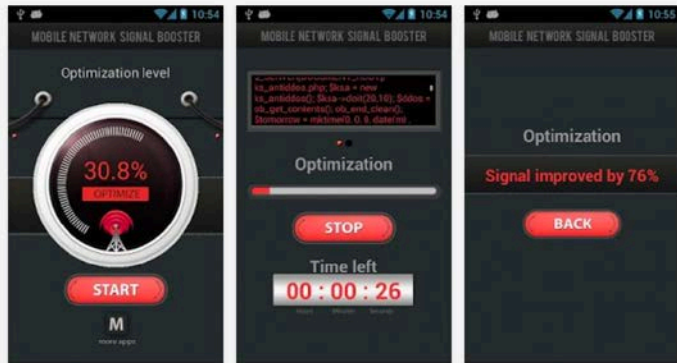
Slovak Creative Studio - April 25, 2013

Tools

Install

Add to Wishlist

★★★★☆ (472)



## Description

Mobile Network Signal Booster allows you to optimize the level of the signal in your phone and use the nearest stations to significantly improve signal reception and the Internet!

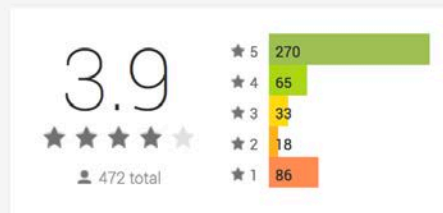
Optimizes signal your phone in one click.

Features of the application:

- ✓ Very easy-to-use
- ✓ Optimizes signal not only a phone, but also the work of the Internet in your handset.
- ✓ For more effective optimization it is recommended to repeat optimization for several days

## Reviews

Write a Review



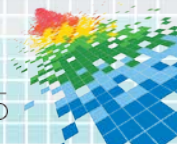
AMAZING Out of the multitude of apps that I have tried to strengthen my network signal, this is the only one that works!

Nanci M. LambCranford ★★★★★



Wowow Idk if this app really works for the evo 4g when im outside my house in the open area my signals fine with the

Anthony Kasowski ★★★★★



# Mobile Network Signal Booster

## Additional information

**Updated**

April 25, 2013

**Size**

13M

**Installs**

50,000 - 100,000

**Current Version**

1.0

**Requires Android**

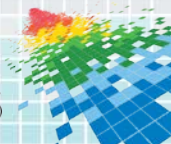
2.2 and up

**Content Rating**

Everyone

**Contact Developer**

[Email Developer](#)



# Cartoon Wars



## Cartoon Wars

GAMEVIL Inc. - August 26, 2014  
Arcade

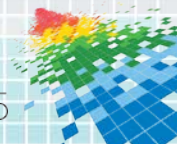
[Install](#) [Add to Wishlist](#)

This app is compatible with all of your devices. Offers in-app purchases

★★★★★ (459,875)

[+79665 Recommend this on Google](#)

Top Developer



# Cartoon Wars

## Additional information

**Updated**

August 26, 2014

**Size**

15M

**Installs**

10,000,000 - 50,000,000

**Current Version**

1.1.1

**Requires Android**

2.2 and up

**Content Rating**

Medium Maturity

**In-app Products**

\$0.99 - \$99.99 per item

**Permissions**

[View details](#)

**Report**

[Flag as inappropriate](#)

**Offered By**

GAMEVIL Inc.

**Developer**

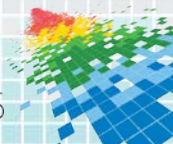
[Visit Website](#)

[Email](#)

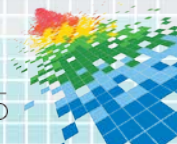
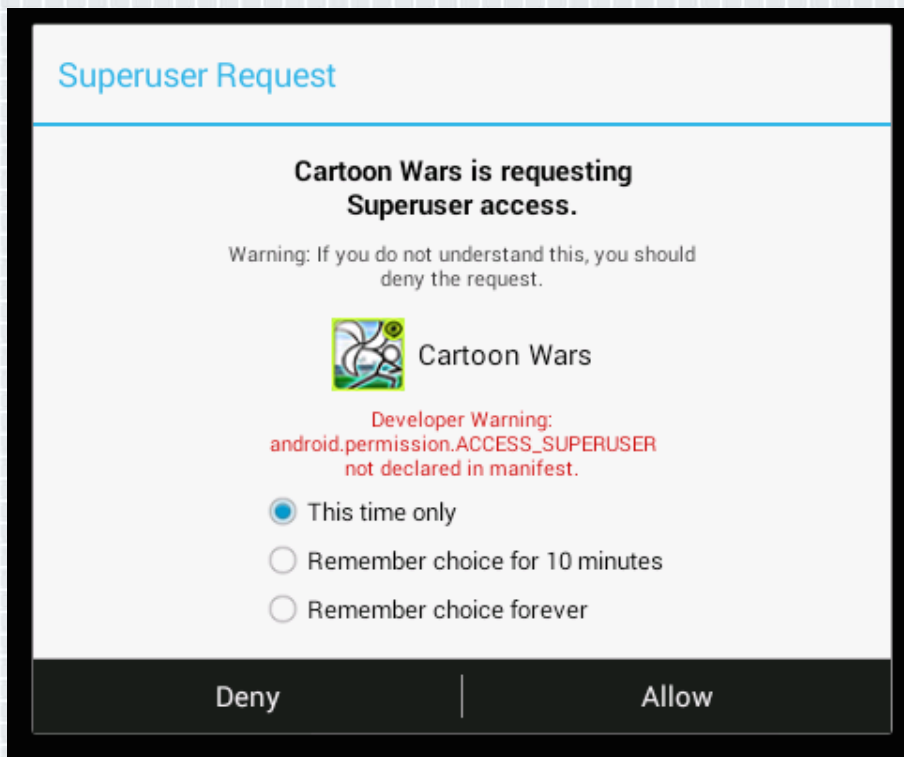
[contact@gamevilusa.com](mailto:contact@gamevilusa.com)

[Privacy Policy](#)

999 N Sepulveda Blvd, Ste 150, El Segundo, CA, United States



# Cartoon Wars



# Brightest LED Flashlight



## Brightest LED Flashlight

Intellectual Flame Co., Ltd. - September 2, 2014

Tools

Install

Add to Wishlist

This app is compatible with all of your devices.

★★★★★ (575,802)

+141458 Recommend this on Google

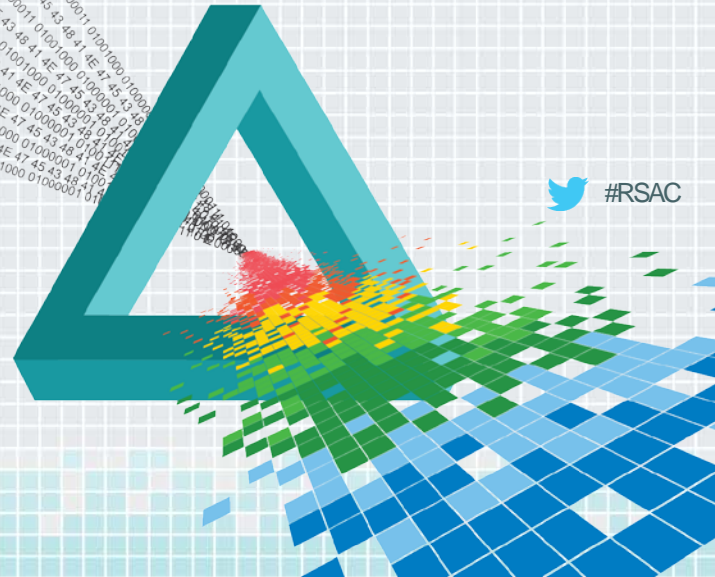


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

## Selected Developer Responses

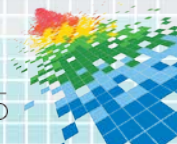
*Still optimistic?*



# Application author response

Hello,

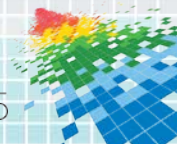
Thank you for your e-mail! The app that you have in mind is not created or related to us or [REDACTED]. We recently found out about it and we are looking for a way to take it down as it's made by a person trying to exploit [REDACTED]'s name. Is there a way to report this app and take it down? We would really appreciate help in this.



# Application author response

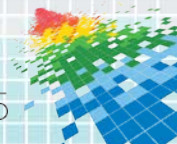
I understand, i was consuming a service the generates real random numbers based on measurements of quantum phenomena.

So i just didnt cared about the ssl config on the http request since it was a very trivial.



# Application author response

I don't know what the hell you're talking about, my application does not include any SSL connection !!!



# Application author response

Remove



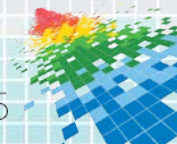
# Application author response

What????



# Application author response

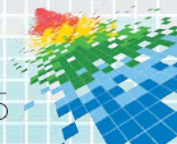
I want to thank you very much fix for SSL, but Google Play Store my suspends, I want to fix bugs, I want to get back my application, please help



# Application author response

Mr. Will

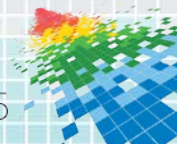
Thanks alot for your analysis. We checked everything in the app. There is not even a single bug. Your mail is type a type of spam which is of no use. If you really have something then work practically.



# Application author response

Hi CERT Coordination Center,

Our application is an authentication application and has among other features a backend where there is a Risk Engine present, the communication taking place when connecting with a faulty certificate is to merely a notification mechanism to tell the server the communication channel is being tampered with. As such, it is a feature that our application to continue to communicate with the backend even even though the channel is compromised by usage of a faulty certificate.

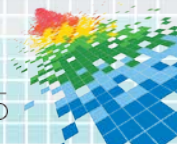


# Application author response

Well I'm not sure how a SSL Vulnerability can be present in an application when I don't take any payments through the application for any product. Looks like you have much more testing to do. Can you please stop sending me emails.

Thanks

—



# Application author response

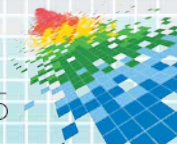
take me off your list



# Application author response

Please contact the NSA.gov for this case because I am not the owner of this site

Thank you

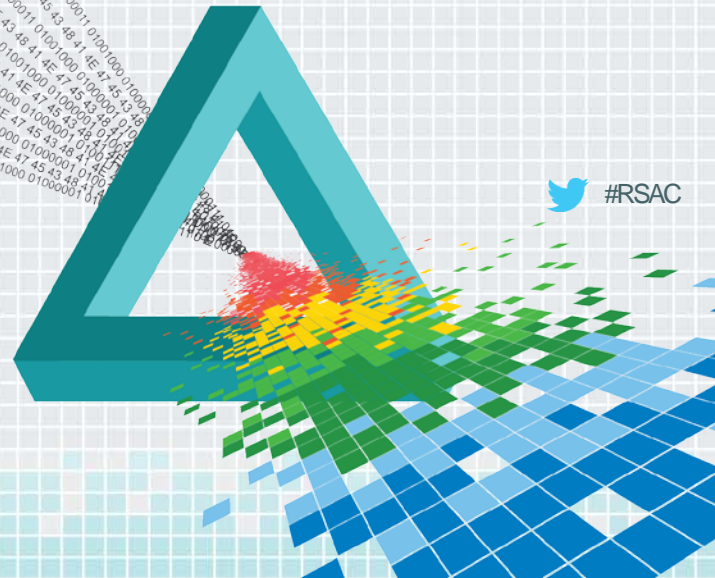


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center


## Public Reception

Fighting the battle of who could care less



 #RSAC

# Reddit


reddit
ANDROIDDEV
comments
related

↑
23
↓
I've got a security notice about a SSL vulnerability in my (very simple) app. It's spam, right?
(self.androiddev)

submitted 1 day ago \* by wowsuchlinuxkernel

I get tons of those mails, and I usually do recognise what's spam and what is not. Just for fun, I checked the files attached to the mail (it's a text file and I run Linux) and found the classes of my app that connect to the internet in it, seeming as if it was real. The mail is from cert@cert.org, but the sender email is very easy to fake.

Should I be concerned?

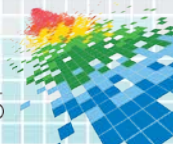
Edit: There are three files attached, one containing the classes that connect to the internet, one with a few URLs (that apparently have been used for the MITM attack) and one binary file that I am still failing to open:

```

username@hostname /tmp $ mitmproxy -r abc.def.ghi.apk.flows.log.bin
warning: You are using mitmproxy 0.10.1 with netlib 0.11.1. Most likely
Traceback (most recent call last):
  File "/usr/bin/mitmproxy", line 36, in <module>
    config = proxy.process_proxy_options(parser, options)
  File "/usr/lib/python2.7/site-packages/libproxy/proxy.py", line 590,
    certutils.dummy_ca(cacert)
AttributeError: 'module' object has no attribute 'dummy_ca'

```

29 comments share save hide give gold report



# Reddit

↑ [-] **flangrantaroma** 4 points 1 day ago

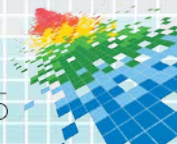
↓ The issue would be that if you do not use SSL somebody using your app who is on a hostile network could have that publicly available file replaced with a malicious file without realizing it. The replacement could be filled with phishing links or exploit a vulnerability in the code that is processing that file.

[permalink](#) [save](#) [parent](#) [report](#) [give gold](#) [reply](#)

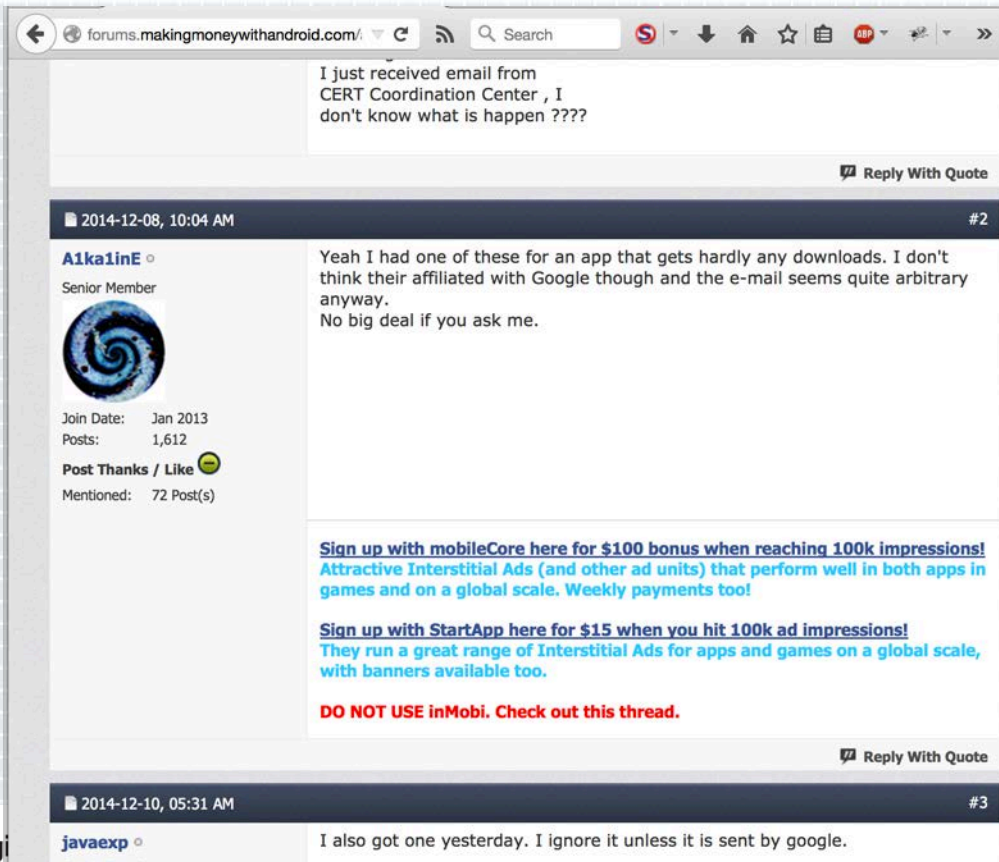
↑ [-] **wowsuchlinuxkernel** [S] -8 points 1 day ago

↓ Right! Thanks, I did not think about that. My app's audience are people who have much knowledge of computers so I think I can keep this "bug" unfixed. Thank you for your help.

[permalink](#) [save](#) [parent](#) [report](#) [give gold](#) [reply](#)



# forums.makingmoneywithandroid.com




I just received email from CERT Coordination Center , I don't know what is happen ????

**Reply With Quote**

---

2014-12-08, 10:04 AM #2

**Aika1nE** ◦  
Senior Member



Join Date: Jan 2013  
Posts: 1,612

**Post Thanks / Like** ◯  
Mentioned: 72 Post(s)

Yeah I had one of these for an app that gets hardly any downloads. I don't think their affiliated with Google though and the e-mail seems quite arbitrary anyway.  
No big deal if you ask me.

[Sign up with mobileCore here for \\$100 bonus when reaching 100k impressions! Attractive Interstitial Ads \(and other ad units\) that perform well in both apps in games and on a global scale. Weekly payments too!](#)

[Sign up with StartApp here for \\$15 when you hit 100k ad impressions! They run a great range of Interstitial Ads for apps and games on a global scale, with banners available too.](#)

**DO NOT USE inMobi. Check out this thread.**

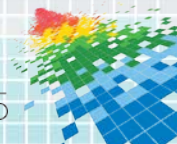
**Reply With Quote**

---

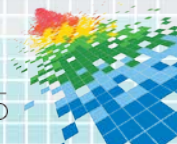
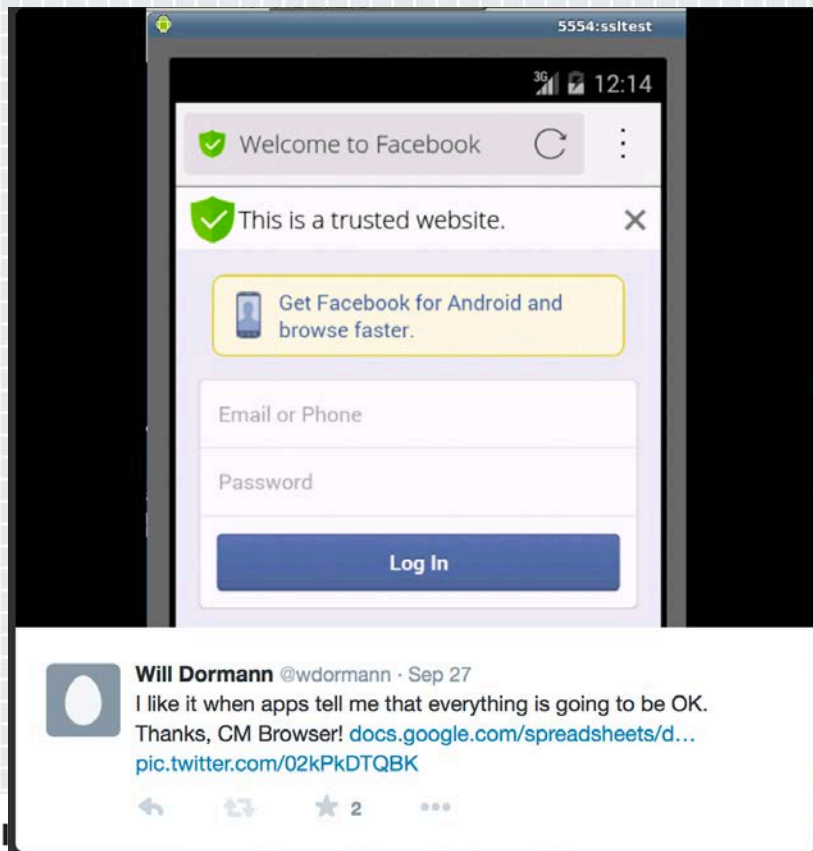
2014-12-10, 05:31 AM #3

**javaexp** ◦

I also got one yesterday. I ignore it unless it is sent by google.



# Twitterverse #1 (warmup)



# Four Months Later

CM Browser - Fast & Secure  
Cheetah Mobile Inc. - January 27, 2015  
Communication

Install Add to Wishlist

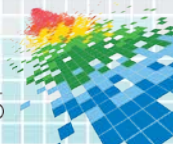
★★★★☆ (1,131,825)

## Still Vulnerable

Speedy  
Browsing acceleration gets you browsing faster than ever

Small  
Downloading, installing, and updating ever faster  
only 1.7MB

CM Browser features



# Twitterverse #2 (Getting interesting)



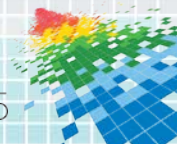
**Coles Supermarkets** ✓

@Coles



Follow

@wdormann privacy & security is of the utmost importance to us & our credit card app has never experienced a security vulnerability.

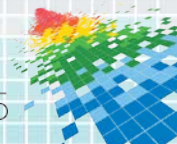


# Reality-distortion field

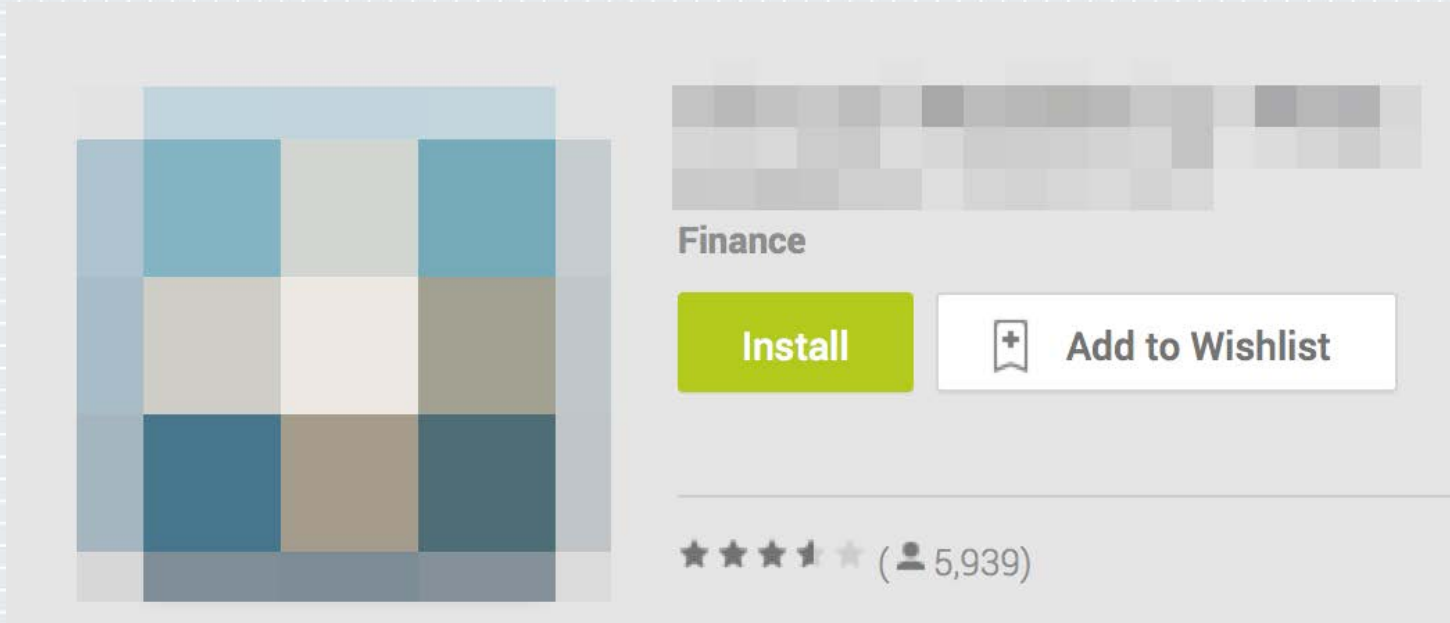
“We have systems in place to immediately react to the ever-changing demands of the digital environment. Our credit card app has never experienced a security vulnerability.”

The spokesperson added that the app is read only and all customer’s money is protected under MasterCard’s [guarantee](#).

<http://www.computerworld.com.au/article/554457/coles-responds-credit-card-app-vulnerability-reports/>



# Let's go nuclear



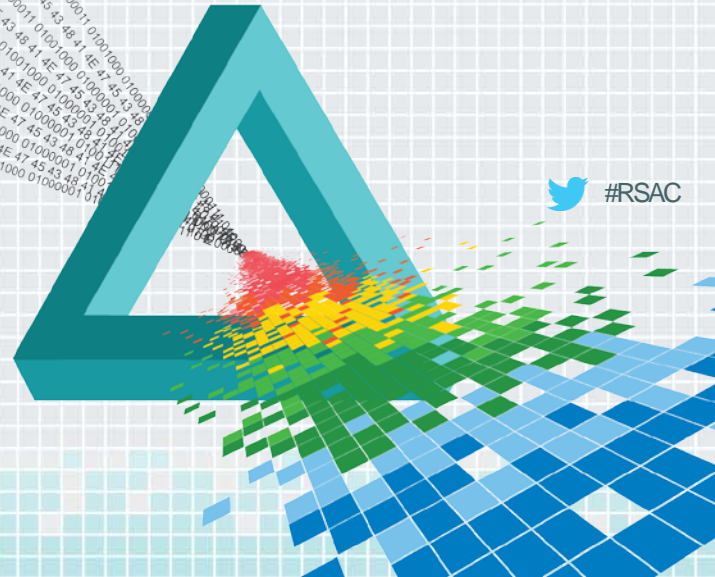
# Vendor Reaction



# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

**Not Everything is Bad**  
*At least one*



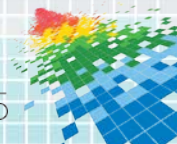
 #RSAC

# Somebody Cares!

Hello.

Thank you very much for the reply. I've confirmed that our record has been updated in the spreadsheet. And let me say thank you again for your hard efforts to investigate and report problems in large number of Android apps. Without your help, we'd have overlooked the issue much longer.

Best Regards,

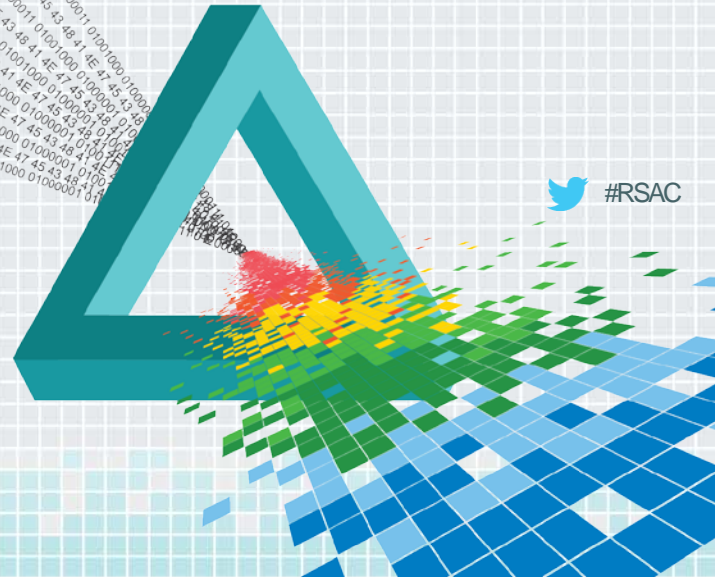


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

## Statistics

*Numbers don't lie?*



 #RSAC

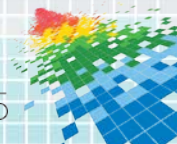
# The Numbers

	Total	Percent
Free Apps Tested	1,000,500	Most?
Vulnerable Apps Discovered	23,667	2.4%
Vulnerable App Authors Notified	23,301	98.5%
Email responses	1,593	6.8%
Email responses with fix details	25	0.1%

“There are now 1 million apps in the [Google Play](#) store.”

July 24, 2013

<http://mashable.com/2013/07/24/google-play-1-million/>

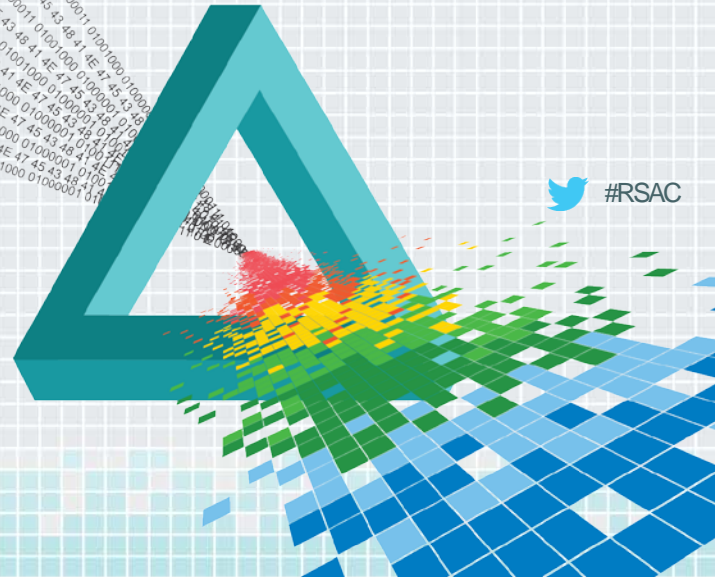


# RSA<sup>®</sup>Conference2015

San Francisco | April 20-24 | Moscone Center

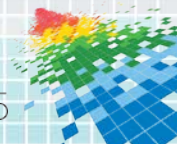
## Where do we go from here?

*Forward*



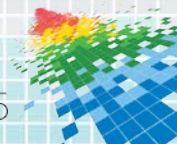
# Further Work

- Full SSL visibility (Root CA cert installed)
- Improved automation
- Other Platforms (IOS, Blackberry, Windows Phone)
- True Scalability



# Conclusions

- Vulnerability coordination doesn't scale easily
- CVE doesn't scale easily
- There are plenty of horrible Android applications
- Application authors aren't very responsive



# Apply What You Have Learned Today

- ◆ Next week you should:
  - ◆ Download CERT Tapioca
  - ◆ Test using CERT Tapioca
- ◆ In the first three months following this presentation you should:
  - ◆ Use Tapioca to test applications used in your organization for SSL validation failures
    - ◆ Non-free applications
    - ◆ Non-Android applications
    - ◆ Report failures to CERT

