



About Me



About Me

- IT Security Consultant
- Penetration Tester/Ethical Hacker with 5 years experience
- Working for enterprise (banking industry, telecommunication companies, wholesale, etc.)
- Trainer for Android and Web Pentesting
- Author and Maintainer of Awesome Pentest Cheatsheets project https://github.com/coreb1t/awesome-pentest-cheat-sheets
- Bug Hunter
 Yahoo on HackerOne https://hackerone.com/coreb1t





Requirements:

- Kali like distribution for mobile penetrations testing
- Updates for most used tools
- extensibility



- Setup Pentest Environment
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Setup Pentest Environment - Current status

• https://github.com/tanprathan/MobileApp-Pentest-Cheatsheet

Distribution	Notes	Last Update
MobiSec	Last update 3 years ago	3 years ago
Santoku	Based on Ubuntu 14.04	
Vezir Project	Based on Ubuntu 15.04 2,5 years ag	2,5 years ago
Apple	For Window only	2018-05-08
Android Tamer	Manually updated to last versions of platform-tools, Android SDK, Android Studio and much more	



- Setup Pentest Environment
- Do we really need to use separated environment/VM?
- 95 % of time we are using the same (few) tools
- adb
- Java Decompiler
- Tools for static analysis
- Tools for dynamic analysis
- Debugger
- Tools allowing runtime modification



 That is how the idea for Mobile-Pentest-Toolkit (MPT) was born

For each category of tools use just one tool

FAIDA

apktool

abe







pidcat

signapk





- Can you remember all the command line parameters for the mentioned tools?
- Example:
- jarsigner -verbose -sigalg SHA1withRSA -digestalg SHA1 -keystore <name>
 <apk><alias> -storepass <pw>
- frida -R -f <package-name> -l file.js --no-pause
- You have to specify what to do and not how.
- MPT provides a simplest interface to your tooling related to android security testing.



- Setup Pentest Environment Tools
- MPT implements a simple package manager
- Currently supported git, http, and zip installation



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- Setup Pentest Environment Device
- Install Pentest tools
- XposedFramework
- Drozer
- JustTrustMe (xposed plugin)
- Inspeckage (xposed plugin)
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- Setup Pentest Environment Pentest
- Install the app
- Create configuration
- Allows to use MPT from everywhere



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- Starting your favorite tools
- jd-gui (source code review)
- Drozer (android app analysis)
- mobSF (static analysis)
- frida
- more



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V2	Data Storage and Privacy	
	Verify that system credential storage facilities are used appropriately to store sensitive data, such as PII, user credentials or	,
2.1	cryptographic keys.	V
2.2	Verify that no sensitive data is stored outside of the app container or system credential storage facilities.	
2.3	Verify that no sensitive data is written to application logs.	\checkmark
2.4	Verify that no sensitive data is shared with third parties unless it is a necessary part of the architecture.	✓



adb logcat Is the output really readable?

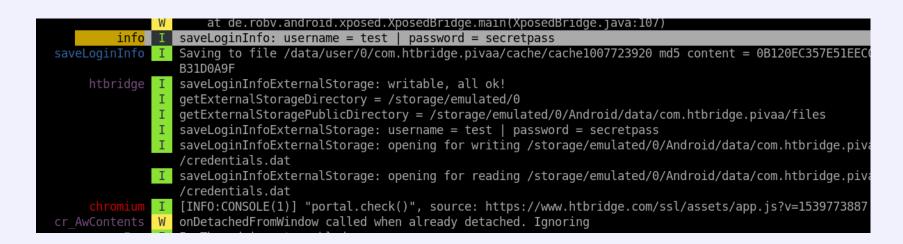
```
l0-25 12:45:08.590 1833 1833 W System.err:
                                             at com.android.internal.os.ZygoteInit.main(ZygoteInit.java:776)
10-25 12:45:08.590 1833 1833 W System.err:
                                             at de.robv.android.xposed.XposedBridge.main(XposedBridge.java:
10-25 12:45:08.590 1833 1833 I info
10-25 12:45:08.590 1833 1833 I info
10-25 12:45:08.592  1833  1833 I saveLoginInfo: Saving to file /data/user/0/com.htbridge.pivaa/cache/cache1821
10-25 12:45:08.609  1833  1833 I htbridge: saveLoginInfoExternalStorage: writable, all ok!
10-25 12:45:08.611 1833 1833 I htbridge: getExternalStorageDirectory = /storage/emulated/0
10-25 12:45:08.614 1833 1833 I htbridge: getExternalStoragePublicDirectory = /storage/emulated/0/Android/data
10-25 12:45:08.615 1833 1833 I htbridge: saveLoginInfoExternalStorage: username = test | password = secretpas
10-25 12:45:08.615 1833 1833 I htbridge: saveLoginInfoExternalStorage: opening for writing /storage/emulated,
ials.dat
10-25 12:45:08.617 1833 1833 I htbridge: saveLoginInfoExternalStorage: opening for reading /storage/emulated
.0-25 12:45:10.620 599 1173 I ActivityManager: START u0 {cmp=com.htbridge.pivaa/.WebviewActivity} from uid
```





Solution: use pidcat

> colored output for only on process





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Backup Option

→ Compare two states of application



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Other challenges

- Dynamic analysis
- Dynamic instrumentation and runtime hooking (Frida)
- Root Detection Bypass
- SSL Pinning Bypass



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- Other helpful tools
- **Objection** is a runtime mobile exploration toolkit, powered by <u>Frida</u> working on not rooted and jailbroken devices.
- https://github.com/sensepost/objection
- AppMon automated framework for monitoring and tampering system API calls of native iOS and android apps
- https://github.com/dpnishant/appmon
- House runtime mobile application analysis toolkit with a Web GUI, powered by <u>Frida</u>
- https://github.com/nccgroup/house



- MPT Overview
- Setup Pentest Environment
 - Tools
 - Device
 - Config
- Simple Interface to interact with pentest tools
- Allows to perform static, dynamic analysis
- Support to bypass SSL certificate pinning and root detection
- Supports zsh autocompletion



Further Ideas

- Automatically rebuild apk with backup and debug flags enabled (in progress)
- Automatically generate PoCs for sending broadcast messages and start activities and services (in progress)
- Integrate file explorer for files on the devices
- Generate Frida hooks for selected code (method) on the fly
- Implement anti-debugging bypass (in progress)