



# Overview: Mobile APPS

➤ Categories

➤ Types

➤ **Distribution/Installation/Logs**

➤ Mobile Test Industry Standards

➤ Remote Device Access (RDA)

➤ Emulators

➤ Simulators

➤ Troubleshooting Guide

➤ App Risk Analysis

# Mobile APPS: *Distribution/Installation: Android .APK*



Through an App Marketplace (*Google Play*)



by Email (*Android system recognizes the APK and displays an Install Now button in the email message*)



Through a Website (*host the release-ready APK file on your website and provide a download link*)



Google Drive



Android Studio



Test Fairy TOOL



Crashlytics



*enable allow "Unknown Sources" on the device  
(Settings > Applications > Unknown Sources)*

# Mobile APPS: **Distribution/Installation: Android .APK**

*What is  
TEST  
FAIRY ?*

TestFairy offers some great features for app developers. One of the stand out features is client side Video recording and not just screen shots.

TestFairy provides a video recording of the exact test from the client side, including CPU, Memory, GPS, Network monitoring, logs, crash reports and more.

With Android apps you don't need to integrate any SDK or APIs into your app builds. You upload your APK (Android application file) to the TestFairy platform.

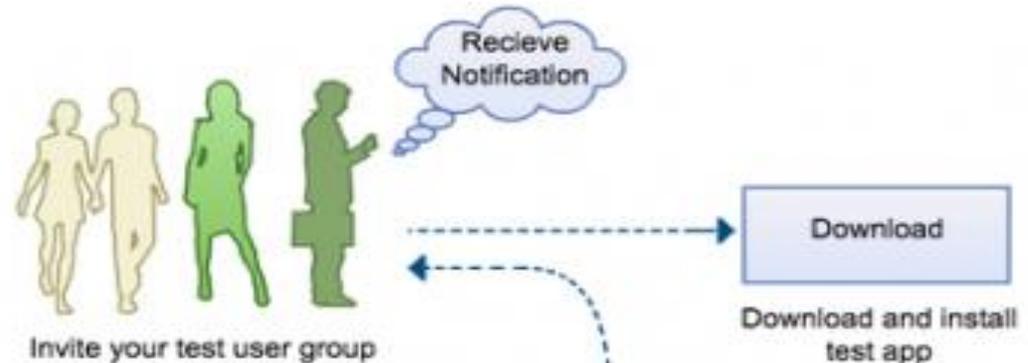
**TEST FAIRY is for ANDROID ONLY**



# Mobile APPS: **Distribution/Installation: Android .APK**

## TEST FAIRY

*You will receive an invitation by email*



Build and generate .apk

You may manually build or use build automation tools

Upload your app

You may upload using scripts, for CI builds.

Processing Build

Build ready

Now build is ready to download

**TEST FAIRY is for ANDROID ONLY**



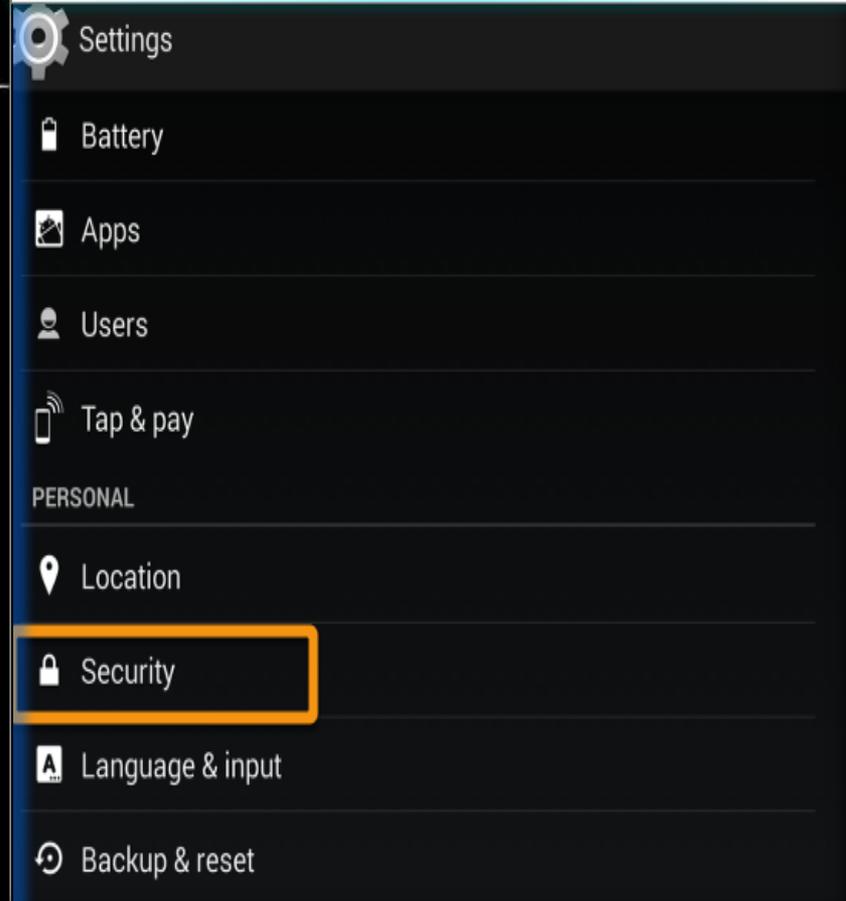
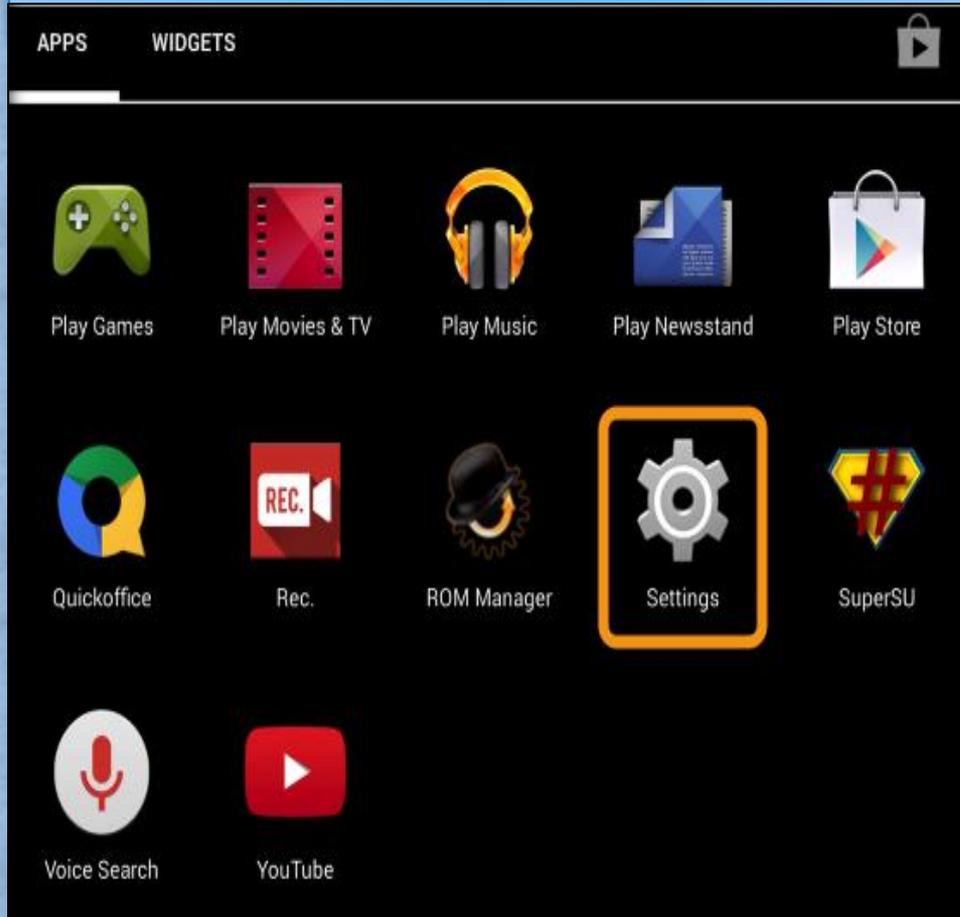
*Test Fairy*  
Smart Android testing

# Mobile APPS: *Distribution/Installation: Android .APK*

## Installing THIRD PARTY APK

1. Go to the "Settings" application on your Android device

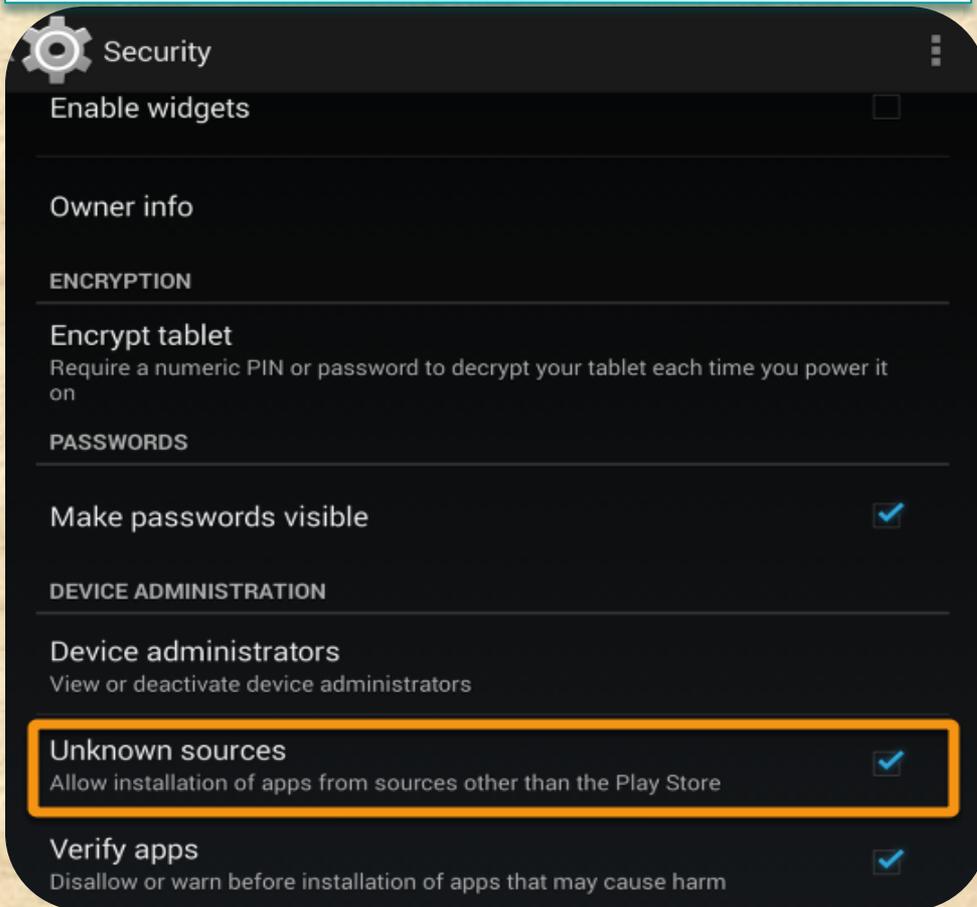
2. Choose the "Security" option located under the heading "Personal"



# Mobile APPS: *Distribution/Installation: Android .APK*

## Installing THIRD PARTY APK ( OS 7 and lower )

3. Under "Device Administration" place a checkbox next to the option "Unknown Sources"



This allows you to install applications on your Android device that are not downloaded directly from the Google Play store

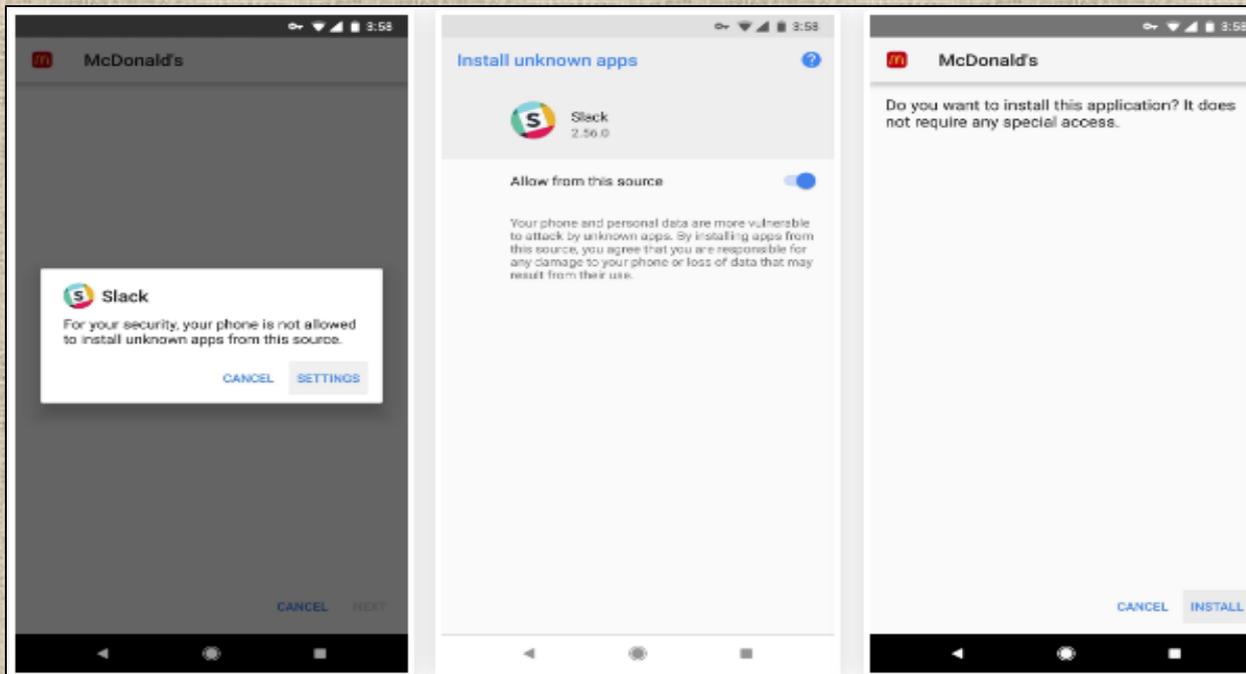
# Mobile APPS: *Distribution/Installation: Android .APK*

## Installing THIRD PARTY APK ( OS 8 and higher )

*Just download APKs as you normally would, but when you launch the APK, you'll be prompted to allow the permission.*

1. Tap "**Settings**" on the prompt,
2. **Enable the switch** next to "Allow from this source" on the following screen.
3. Hit your back button, then you can resume installation.

- ❑ Starting with **Android 8.0**, the process of side loading apps has changed
- ❑ **No longer** is there a system-wide "Unknown Sources" setting instead, it's now handled on a per-app basis.



# Mobile APPS: *Distribution/Installation: Android .APK*

## Transferring APK to your Device

1. On your computer, attach the ".apk" file to an e-mail and send it to an account that you can access via your Android device.



2. On the Android device, click on the ".apk" attachment in the e-mail in order to download it.



3. Follow the on-screen instructions to install the application.

Do you want to install this application? It will get access to:



read phone status and identity



modify or delete the contents of your USB storage  
read the contents of your USB storage



find accounts on the device

### DEVICE ACCESS



full network access  
receive data from Internet  
view network connections  
view Wi-Fi connections

Cancel

Install



# Mobile APPS: Android LOGS : EXTRA

## Installing LOGCAT APP to your Device

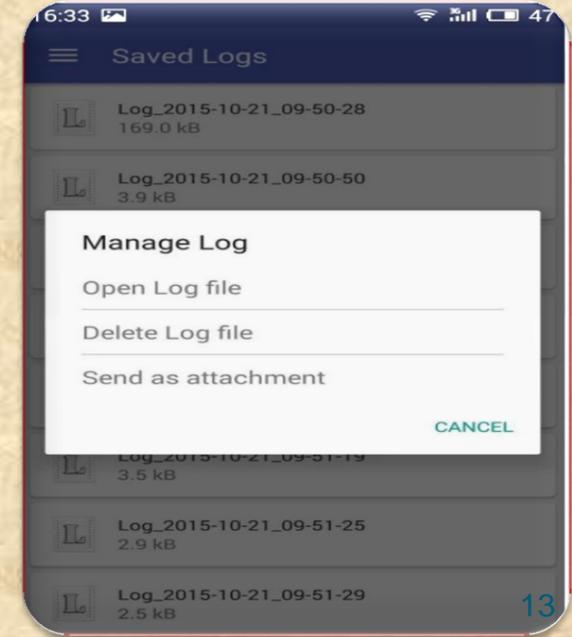
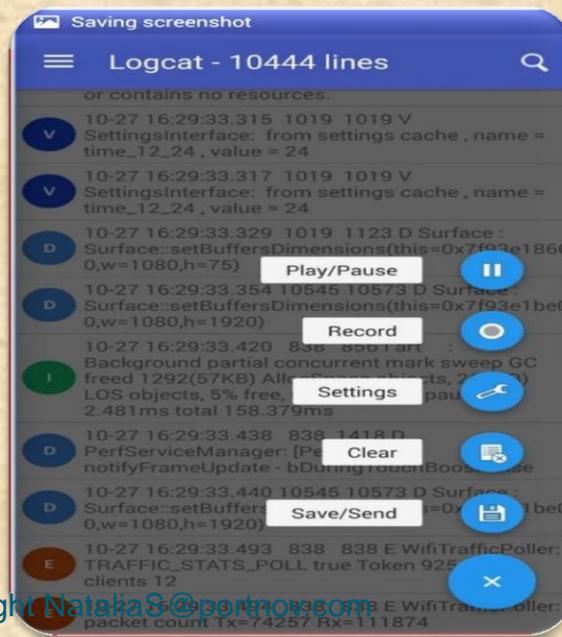
Download  
**LOGCAT EXTREME**  
from PlayStore to  
your Device directly  
*(this is only an  
example, there are  
many other similar  
apps)*



**LOGCAT EXTREME**  
*is* an enhanced  
Logcat reader and  
Logcat recorder  
which comes with a  
rich set of features  
and handy user  
interface.



Please note: From  
Android 4.1 onwards  
ANY logcat app needs  
root access in order to  
show logs properly.



# Mobile APPS: *Distribution/Installation: iOS .IPA*



Through an App Marketplace ( APP STORE)



XCODE



ITUNES



CRASHLYTICS



TEST FLIGHT

# Mobile APPS: **Distribution/Installation: .IPA**

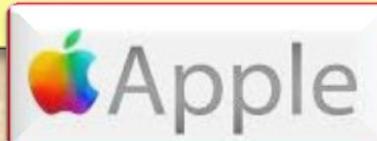


What is XCode?

Xcode is an Intergrated Development Environment by Apple containing a suite of software Development Tools for macOS, iOS, WatchOS and tvOS

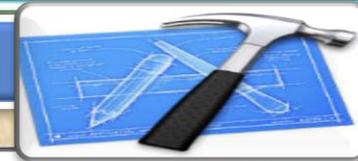
Xcode supports source code for programing languages C, C++, Objective-C, Objective-C++, Java, AppleScript, Python, Ruby, ResEdit (Rez), and Swift

Also supports variety of programming models, including but not limited to Cocoa, Carbon, and Java



# Mobile APPS: *Distribution/Installation: .IPA*

## Distributing .IPA through XCode ?



Connect the device to your Mac.



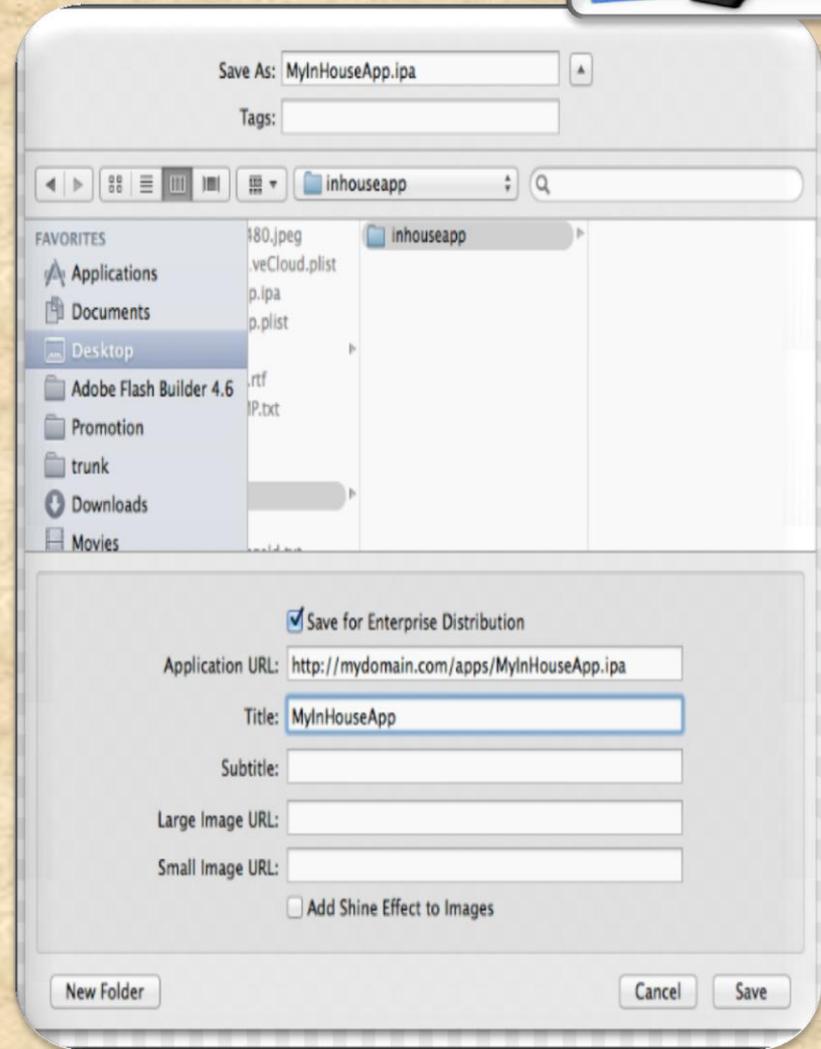
In Xcode, choose Window > Devices and select the device under Devices.



In the dialog that appears, choose the iOS App file and click Open.



In the Installed Apps table, click the Add button (+) below the table.



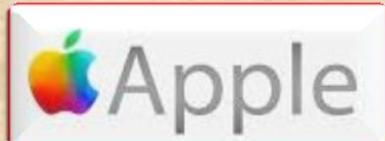
# Mobile APPS: **Distribution/Installation: .IPA**



What is iTunes?

iTunes is a media player, media library, online radio broadcaster, and mobile device management application developed by Apple Inc.

It is used to play, download, and organize digital downloads of music and video (as well as other types of media available on the iTunes Store) on personal computers running the macOS and Microsoft Windows operating systems.



# Mobile APPS: *Distribution/Installation: .IPA*

*Drag-and-drop IPA file into 'Apps' tab of iTunes BEFORE you connect the device*



*Connect your device*

*Select your device on iTunes*

*Select 'Apps' tab*

*Search app that you want to install*

*Click on 'Install' button. This will change to 'Will Install'*

*Click on 'Apply' button on right corner*

# ***LOGS: Collecting from iTunes***

- ❖ Sync your device with iTunes on your desktop.
- ❖ After syncing, look for crash logs in the correct directory.

***The Following few slides will give an instructions . Lets start !***



# ***LOGS: Collecting from iTunes***

## ❑ Mac OS X:

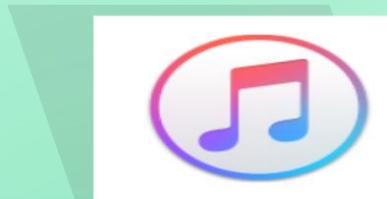
- ❖ Open Finder (found in the Dock)
- ❖ Click on the 'Go' menu at the top of your screen, and select 'Go to Folder'
- ❖ Type (or paste): `~/Library/Logs/CrashReporter/MobileDevice/<DEVICE_NAME>`
- ❖ Open the folder with the same 'name' as your device.  
(Note: your device name appears in iTunes on the left side, under 'Devices').
- ❖ Open the folder called 'Retired'
- ❖ You will see at least one item starting with 'ReadItLaterPro'.



# ***LOGS: Collecting from iTunes***

## Windows:

- ❖ Open any Windows Explorer Window (My Computer, My Documents, etc.)
- ❖ Enter %appdata%, and press enter → Navigate to Roaming  
*C:\Users\<USERNAME>\AppData\Roaming\Apple*
- ❖ *Computer\Logs\CrashReporter\MobileDevice\<DEVICE\_NAME>*
- ❖ (Note: your device name appears in iTunes on the left side, under 'Devices')
- ❖ You will see at least one item starting with 'ReadItLaterPro'.



# ***LOGS: Collecting from your Device***

- To obtain iOS crash logs, please select your device and go to:
- **Settings>Privacy>Analytics>Analytics Data ( iOS 10 and higher )**
- *Settings > Privacy > Diagnostics & Usage (for iOS 8 and iOS 9))*
- *Settings > General > About > Diagnostics & Usage (for iOS 7 or older)*
- ❖ Select a **Chrome** crash from the list.  
This will start with “**Chrome\_**” and contain the timestamp of the crash.
- ❖ Tap on the crash and you will see a text field with a crash log.  
Long press to *Select All* and then *Copy* the crash text.
- ❖ Paste it into something you can get off of your device (for example, an email to yourself).

# Mobile APPS: **Distribution/Installation: .IPA**



What is TestFlight?

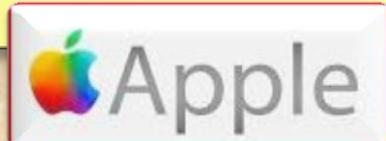
TestFlight is an online service for over-the-air installation and testing of mobile applications, currently owned by Apple Inc and only offered to developers within the iOSDeveloper Program

Developers signed up with the service to distribute applications to internal or external beta testers, who could subsequently send feedback about the application to developers

The TestFlight SDK additionally allows developers to receive remote logs, crash reports and tester feedback.

**HOMEWORK : READ AN ENTIRE ARTICLE ABOUT TestFLIGHT**

**<https://www.raywenderlich.com/48750/testflight-sdk-tutorial>**



# Overview: Mobile APPS

➤ Categories

➤ Types

➤ Distribution/Installation/Logs

➤ Mobile Test Industry Standards

➤ Remote Device Access (RDA)

➤ Emulators

➤ Simulators

➤ Troubleshooting Guide

➤ App Risk Analysis

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

### Challenges

Device fragmentation

In-house vs. outsourced testing

Availability of mobile testing tools

Application Lifecycle Testing

- Like any desktop or web application testing, mobile application testing is also focused on the quality and performance of the final product.
- However, mobile app testing becomes far more challenging because of the following key factors



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

Device Model

OS Version

Screen Resolution

Form Factor

Emulators vs. Physical  
Devices



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

**Network density**

**How the app behaves on specific devices**

**How real-world users interact with the app**

**Different battery states on the devices**

**Multiple networks (Wi-Fi, 4G, 3G, etc.)**

### Beta Testing of your Mobile App



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

applications can be deployed, tested, and managed

saves businesses from setting up on-premise test environments

capability to support complex apps

provides real-time testing results

### Mobile App Testing on Cloud



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

testing mobile apps in real network environments

network simulation tools are available

test mobile apps in various network speeds, bandwidths variations

testing the app in a full internet connectivity scenario and other factors

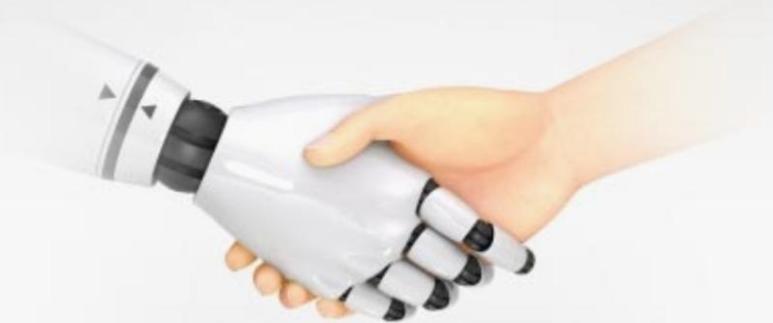
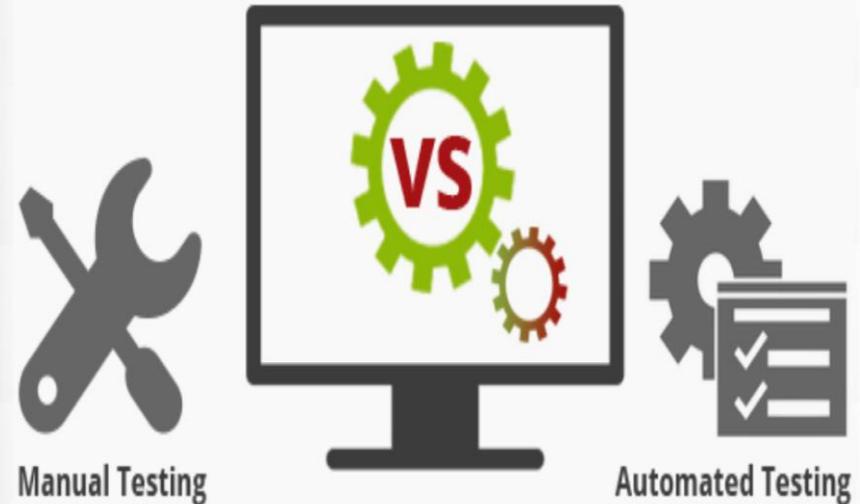


# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

Automated testing is highly effective in consistently repeating a test procedure in regression testing as well as testing during the development stages.

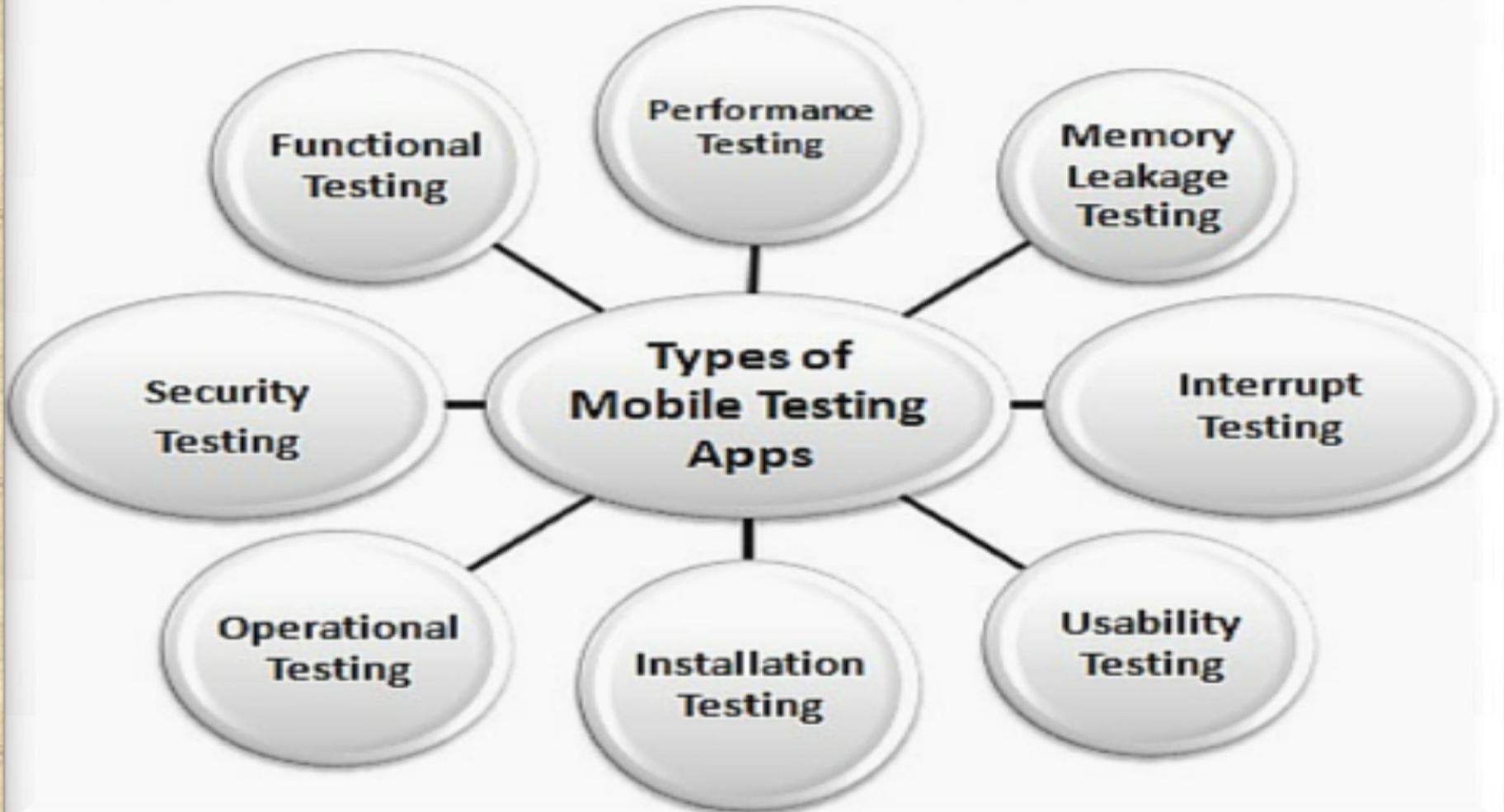
However, test automation requires significant amount of initial investment.



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

# Types of Mobile App Testing



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

### FUNCTIONAL TEST

Verifying that all documented requirements are implemented.

Verifying that all features work as expected.

Validating texts, logos, images, text captions and other UI elements.

Validating localization and globalization.

Evaluating ease of navigation and screen transitions.

Examining response speed.

Evaluating the intuitiveness of the touch interface.

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

### PERFORMANCE TEST

Performance with low battery power

Performance while network out of coverage area

Performance during poor bandwidth

Performance while changing internet connection mode

Performance while transferring heavy file

Testing from Application's server and client side

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

### Memory Leakage TEST

Verifying if program runs for an extended time and consumes additional memory

Verifying if memory is allocated frequently for one-time tasks

Verifying where the program can request memory — such as shared memory that is not released

Verifying where memory is very limited, such as in an embedded system or portable device

Verifying where the leak occurs within the operating system or memory manager

Verifying when a system device driver causes the leak

# **Mobile Test Industry Standards :**

## **Testing Strategies for Mobile Apps**

### **INTERRUPT TEST**

**Battery low**

**Battery full- when charging**

**Incoming phone call**

**Incoming SMS**

**Incoming Alert from another mobile application**

**Plugged in for charging**

**Plugged out from charging**

**Device shut off**

**Application Update reminders**

**Alarm**

**Network connection loss**

**Network connection restoration**

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

### USABILITY TEST

To ensure that the buttons should have the required size and be suitable to big fingers.

To ensure that the buttons are placed in the same section of the screen to avoid confusion to the end users.

To ensure that the icons are natural and consistent with the application.

To ensure that the buttons, which have the same function should also have the same color.

To ensure that the validation for the tapping zoom-in and zoom-out facilities should be enabled.

To ensure that the keyboard input can be minimized in an appropriate manner.

To ensure that the application provides a method for going back or undoing an action, on touching the wrong item, within an acceptable duration.

To ensure that the contextual menus are not overloaded because it has to be used quickly.

# **Mobile Test Industry Standards :**

## **Testing Strategies for Mobile Apps**

### **INSTALLATION TEST**

**Verify application gets installed properly**

**Verify user can uninstall application successfully**

**Verify app updates are properly installed**

**Verify aborting installation does not affect other features**

**Check app behavior on trying to install it on non-supported version/device.**

**Verify app is installed properly from app store and from side loading**

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps

### SECURITY TEST

**Data flow -- Can you establish an audit trail for data, what goes where, is data in transit protected, and who has access to it?**

**Data storage -- Where is data stored, and is it encrypted? Cloud solutions can be a weak link for data security.**

**Data leakage -- Is data leaking to log files, or out through notifications?**

**Authentication -- When and where are users challenged to authenticate, how are they authorized, and can you track password and IDs in the system?**

**Server-side controls -- Don't focus on the client side and assume that the back end is secure.**

**Points of entry -- Are all potential client-side routes into the application being validated?**

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps EXTRA

### FUNCTIONAL VS Non-FUNCTIONAL TEST

Unit Testing  
Smoke testing / Sanity testing

Integration Testing (Top Down, Bottom up Testing)

Interface & Usability Testing

System Testing

Regression Testing

Pre User Acceptance Testing (Alpha & Beta)

User Acceptance Testing

White Box & Black Box Testing

Load and Performance Testing

Ergonomics Testing

Stress & Volume Testing

Compatibility & Migration Testing

Data Conversion Testing

Penetration Testing

Operational Readiness Testing

Installation Testing

Security Testing

# **Mobile Test Industry Standards :**

## **Testing Strategies for Mobile Apps**

### **Platform/OS TEST**

**Different OS ->Android, IOS, Windows**

**Different browsers -> Firefox, Google Chrome, IE, Safari**

**Different Screen Size and resolution**

**OS versions and memory size**

**Hardware capable of interrupt handling without getting hanged**

**Multilingual Support**

**Different Time Zones Support**

# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps EXTRA

### ACCESSIBILITY TEST ( What is SCREEN READER ?)



Mobile Accessibility is critical to reaching all audiences. A product is accessible when a person with a disability can have an experience equivalent to that of a person without a disability

Users who are blind will use a screen reader to navigate and access information on mobile devices.

The screen readers are included in the device operating system and can be turned on in the device settings.

When Screen Reader is turned on, the gestures and keyboard shortcuts change.

In the 2014 Webaim survey shows that 82% of Screen Reader users will use a mobile device



# Mobile Test Industry Standards :

## Testing Strategies for Mobile Apps EXTRA

### ACCESSIBILITY TEST ( SCREEN READER)

#### Web Content Accessibility Guidelines (WCAG)

- A person who is blind using a screen reader or a talking browser can navigate your information and interact with it.
- A person with low-vision can magnify the screen and understand the content.
- A person who is deaf or hard-of-hearing can read captions in multimedia presentations.
- A person with a dexterity limitation can use the alternative input devices for all interaction, or can use speech recognition software.
- A person with ADHD or dyslexia can use and understand the content and complete tasks
- Please refer to this link to learn more <https://www.w3.org/TR/WCAG20/>

Screen reader testing on mobile

Zooming site/application

Color ratios

Readability of the site

Navigation