



k p n

Play with Mobile Applications

Mobile Application

iOS

Architecture ARM v6 v7

Language Objective C

Development Xcode (mainly)

Dev Platform: OSX (mainly)

Android

Architecture ARM v6 v7

Language Java

Development Eclipse (mainly)

Dev Platform: OSX, Linux, Windows

Mobile Application

iOS

Cocoa Touch

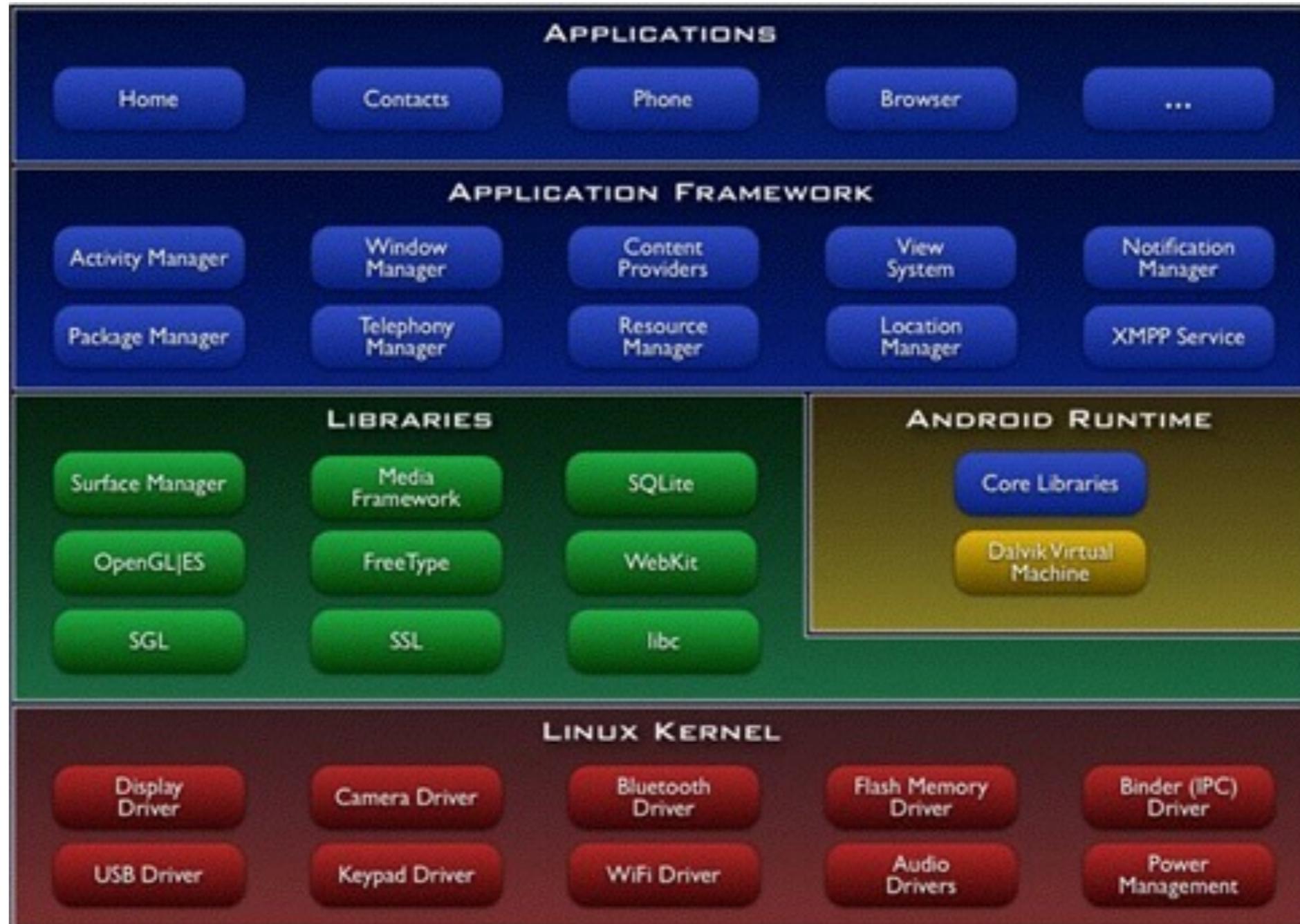
Media Layer

Core Services

Core OS

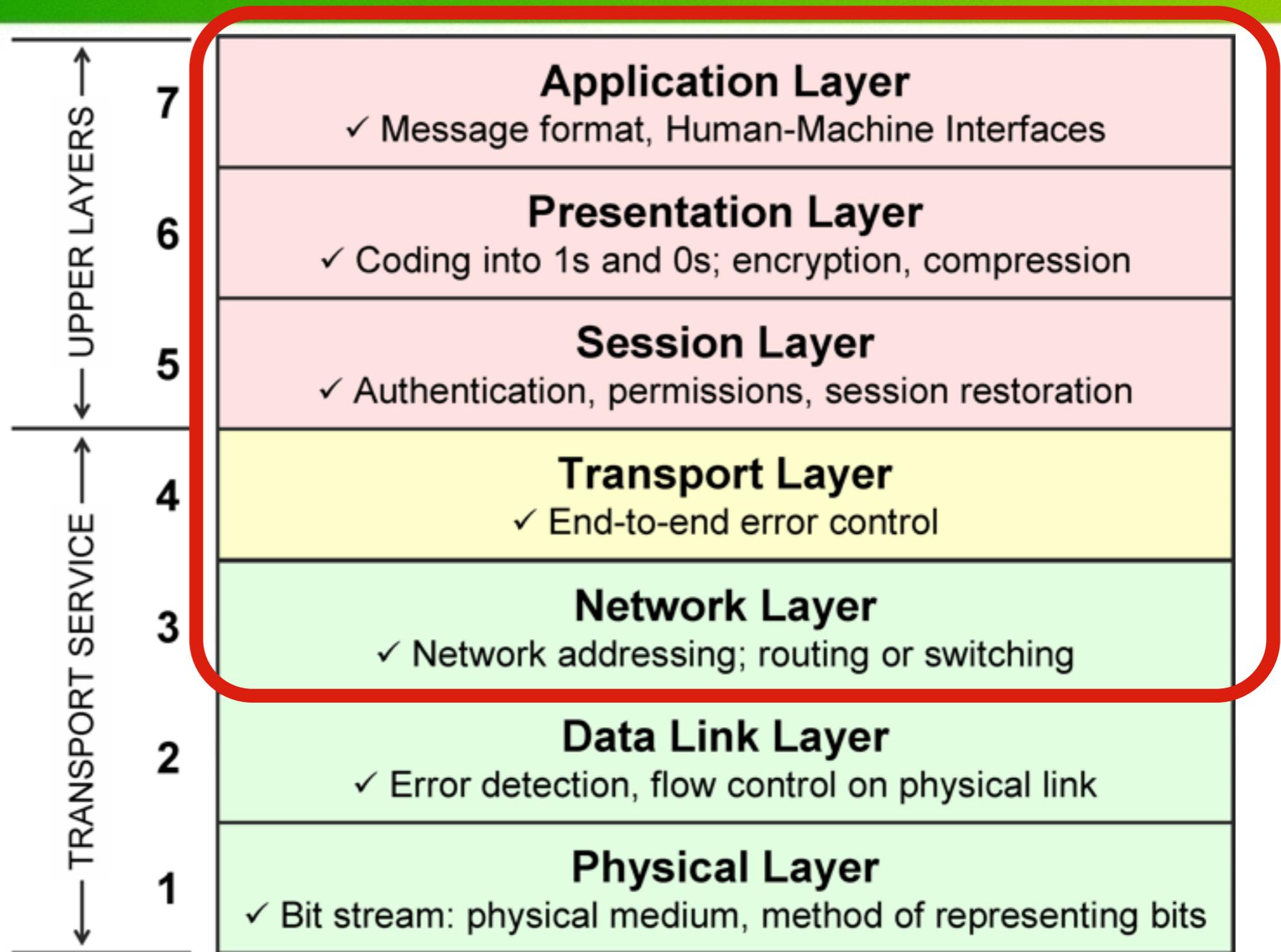
Mobile Application

Android



Mobile Application

Start point

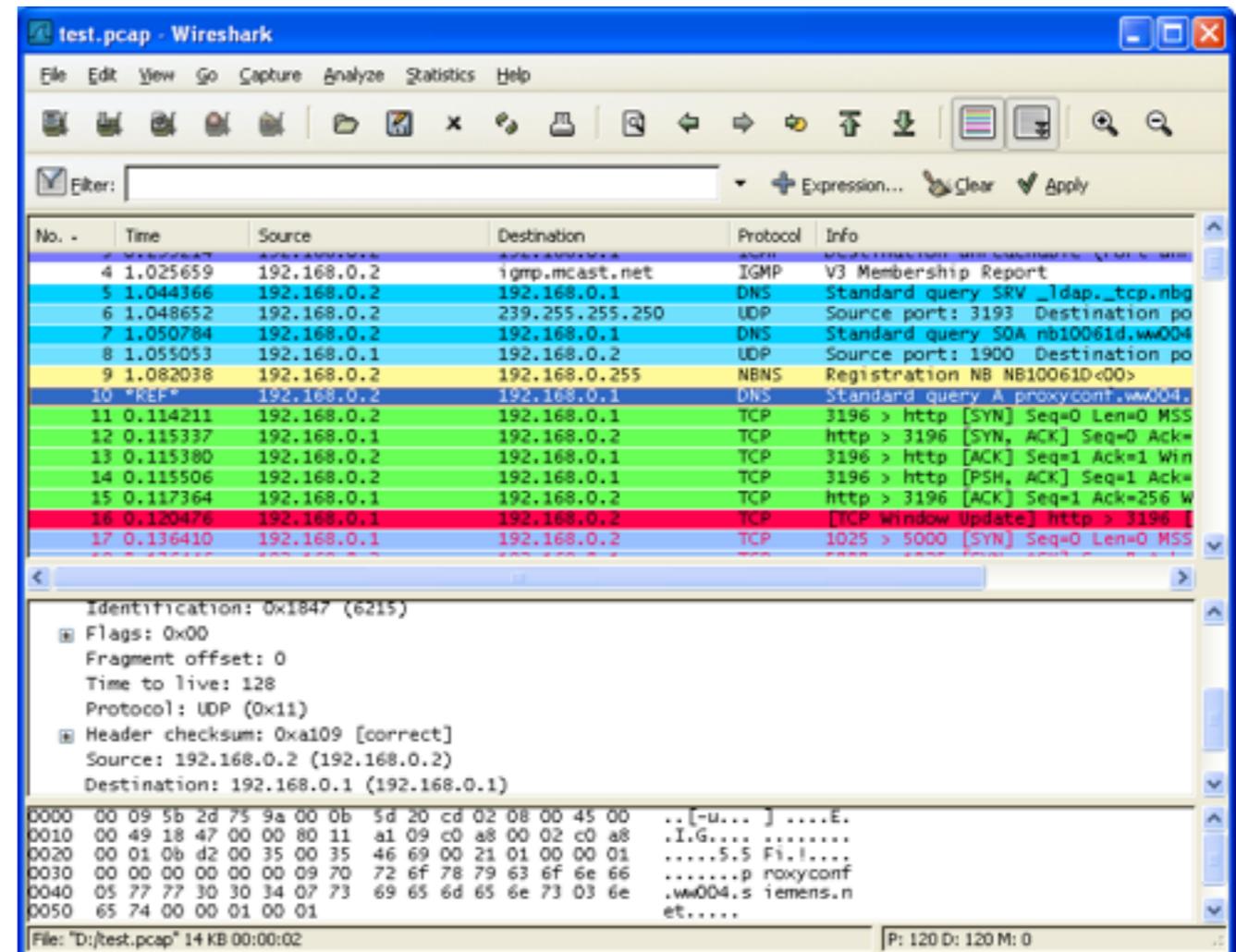


Mobile Application

Network traffic dump.

TCPdump

WireShark traffic dump



The screenshot shows the Wireshark interface with a traffic dump. The main pane displays a list of captured packets with columns for No., Time, Source, Destination, Protocol, and Info. The selected packet (No. 16) is expanded to show its details, including Identification, Flags, Fragment offset, Time to live, Protocol, Header checksum, Source, and Destination. The packet bytes pane shows the raw data in hexadecimal and ASCII.

No.	Time	Source	Destination	Protocol	Info
4	1.025659	192.168.0.2	192.168.0.1	IGMP	V3 Membership Report
5	1.044366	192.168.0.2	192.168.0.1	DNS	Standard query SRV _ldap._tcp.nbg
6	1.048652	192.168.0.2	239.255.255.250	UDP	Source port: 3193 Destination po
7	1.050784	192.168.0.2	192.168.0.1	DNS	Standard query SOA nb10061d.w004
8	1.055053	192.168.0.1	192.168.0.2	UDP	Source port: 1900 Destination po
9	1.082038	192.168.0.2	192.168.0.255	NBNS	Registration NB NB10061D<00>
10	"REF"	192.168.0.2	192.168.0.1	DNS	Standard query A proxyconf.w004
11	0.114211	192.168.0.2	192.168.0.1	TCP	3196 > http [SYN] Seq=0 Len=0 MSS
12	0.115337	192.168.0.1	192.168.0.2	TCP	http > 3196 [SYN, ACK] Seq=0 Ack=
13	0.115380	192.168.0.2	192.168.0.1	TCP	3196 > http [ACK] Seq=1 Ack=1 Win
14	0.115506	192.168.0.2	192.168.0.1	TCP	3196 > http [PSH, ACK] Seq=1 Ack=
15	0.117364	192.168.0.1	192.168.0.2	TCP	http > 3196 [ACK] Seq=1 Ack=256 W
16	0.120476	192.168.0.1	192.168.0.2	TCP	[TCP Window Update] http > 3196
17	0.136410	192.168.0.1	192.168.0.2	TCP	1025 > 5000 [SYN] Seq=0 Len=0 MSS

Identification: 0x1847 (6215)
Flags: 0x00
Fragment offset: 0
Time to live: 128
Protocol: UDP (0x11)
Header checksum: 0xa109 [correct]
Source: 192.168.0.2 (192.168.0.2)
Destination: 192.168.0.1 (192.168.0.1)

0000 00 09 5b 2d 75 9a 00 0b 5d 20 cd 02 08 00 45 00 ..[-u...]E.
0010 00 49 18 47 00 00 80 11 a1 09 c0 a8 00 02 c0 a8 .I.G.... ..
0020 00 01 0b d2 00 35 00 35 46 69 00 21 01 00 00 01S.5 Fi.!...
0030 00 00 00 00 00 09 70 72 6f 78 79 63 6f 6e 66p roxyconf
0040 05 77 77 30 30 34 07 73 69 65 6d 65 6e 73 03 6e .w004.s iemens.n
0050 65 74 00 00 01 00 01 et.....

File: "D:\test.pcap" 14 KB 00:00:02 | P: 120 D: 120 M: 0

Mobile Application

iOS

HTTP Proxy BurpSuite
Configuration in mobile client

Android

HTTP Proxy BurpSuite

Network settings / Advanced.
Configuration in emulator.

Proxy Droid on the phone and BurpSuite

Mobile Application

Android

Voor intern gebruik



Mobile Application

Android

adb - access phone

strings - Getting strings from the binary

smali

dex2jar - for creating a jar file of an .apk

jd-gui - for decompiling

burp-suite and Wireshark for traffic interception and analyse.

Mobile Application

Android - adb

Getting apps from the phone

```
adb shell pm list packages
```

```
adb shell pm path com.example.someapp
```

```
adb pull /data/app/com.example.someapp-2.apk
```

Mobile Application

Android - adb logcat

```
D/dalvikvm(24579): VFY: replacing opcode 0x6e at 0x0042
D/Finsky (22561): [2788] InAppBillingUtils.pickAccount: com.whatsapp: Account determined from installer data -
[g4W2-YZDoOL89AKlogbxnAowExo]
D/Finsky (22561): [2811] InAppBillingUtils.pickAccount: com.whatsapp: Account determined from installer data -
[g4W2-YZDoOL89AKlogbxnAowExo]
D/Finsky (22561): [2811] InAppBillingUtils.pickAccount: com.whatsapp: Account determined from installer data -
[g4W2-YZDoOL89AKlogbxnAowExo]
I/qtaguid (22561): Failed write_ctrl(u 74) res=-1 errno=22
I/qtaguid (22561): Untagging socket 74 failed errno=-22
W/NetworkManagementSocketTagger(22561): untagSocket(74) failed with errno -22
I/ElegantRequestDirector(22561): I/O exception (org.apache.http.NoHttpResponseException) caught when
processing request: The target server failed to respond
I/ElegantRequestDirector(22561): Retrying request
D/Volley (22561): [2796] BasicNetwork.logSlowRequests: HTTP response for request=<[ ] https://
android.clients.google.com/fdfe/bulkDetails 0xe8d195d1 NORMAL 76> [lifetime=3198], [size=1624], [rc=200],
[retryCount=0]
```

Mobile Application

Android strings

`cat app.binary | strings > output.txt` or `cat app.binary | strings | egrep ‘.{10,15}’`

```
res/drawable/add_icon.png
{{{__RRRMMM
/ ($,,,$(
,-&.!)%-#+’
res/drawable/add_icon_pressed.png
rrrVVVBBB999666ppp
/ ($,,,$(
res/drawable/add_icon_selector.xml
res/drawable/context_menu_bg.xmlm
res/drawable/context_menu_btn_normal.xmlu
res/drawable/context_menu_btn_pressed.xml]
res/drawable/context_menu_btn_selector.xml
res/drawable/context_menu_header_bg.xmlu
res/drawable/gradient_btn_disabled.xml
res/drawable/gradient_btn_normal.xml
res/drawable/gradient_btn_pressed.xml
res/drawable/gradient_btn_selector.xml
res/drawable/gradient_cell_bg.xml
res/drawable/gradient_menu_bg.xml]
res/drawable/ic_launcher.png
res/drawable/ice_drive_logo.png
res/drawable/icn_audio.png
```

Mobile Application

smali

smali/baksmali is an assembler/disassembler for the dex format used by dalvik, Android's Java VM implementation.

Mobile Application

smali sample

Example 1 java code

Code:

```
if (flagx == 1)
    flagx = 2
else
    flagx = 3
```

When flagx variable is referenced as v0

Equivalent Example 1 smali code

Code:

```
const/4 v1, 0x1
if-ne v0, v1, :cond_0
const/4 v2, 0x2
move v0,v2
goto :goto_0
```

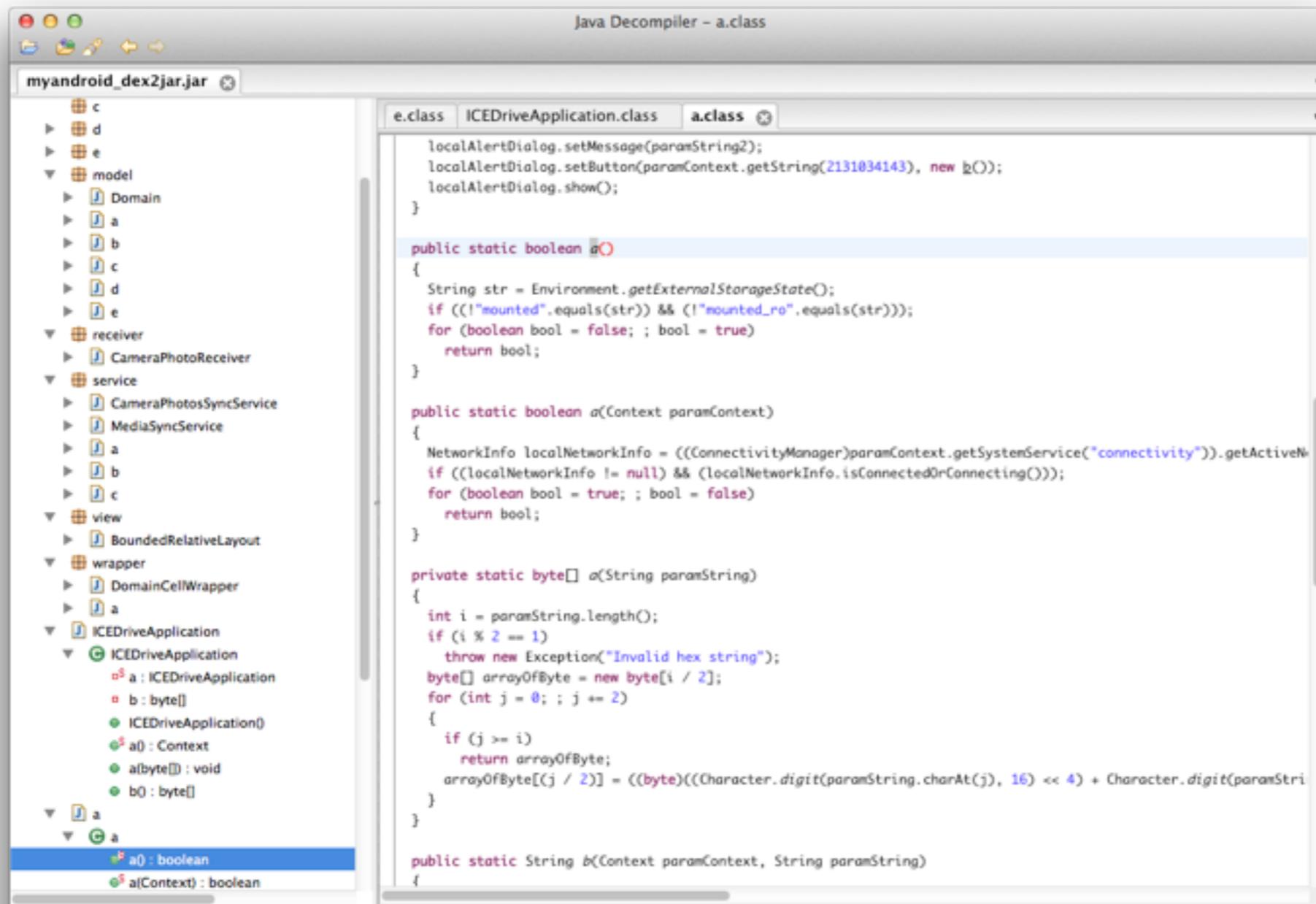
Mobile Application

Android dex2jar

```
root@Xeno /Users/Jack/Desktop/mobile-presentation
# /opt/android/dex2jar/dex2jar.sh myandroid.apk
dex2jar version: translator-0.0.9.8
dex2jar myandroid.apk -> myandroid_dex2jar.jar
Done.
```

Mobile Application

Android JD-GUI



The screenshot shows the Java Decompiler interface with the following decompiled code:

```
localAlertDialog.setMessage(paramString2);
localAlertDialog.setButton(paramContext.getString(2131034143), new b());
localAlertDialog.show();
}

public static boolean a()
{
    String str = Environment.getExternalStorageState();
    if ((("mounted".equals(str)) && (!"mounted_ro".equals(str))))
        for (boolean bool = false; ; bool = true)
            return bool;
}

public static boolean a(Context paramContext)
{
    NetworkInfo localNetworkInfo = ((ConnectivityManager)paramContext.getSystemService("connectivity")).getActiveNetworkInfo();
    if ((localNetworkInfo != null) && (localNetworkInfo.isConnectedOrConnecting()));
        for (boolean bool = true; ; bool = false)
            return bool;
}

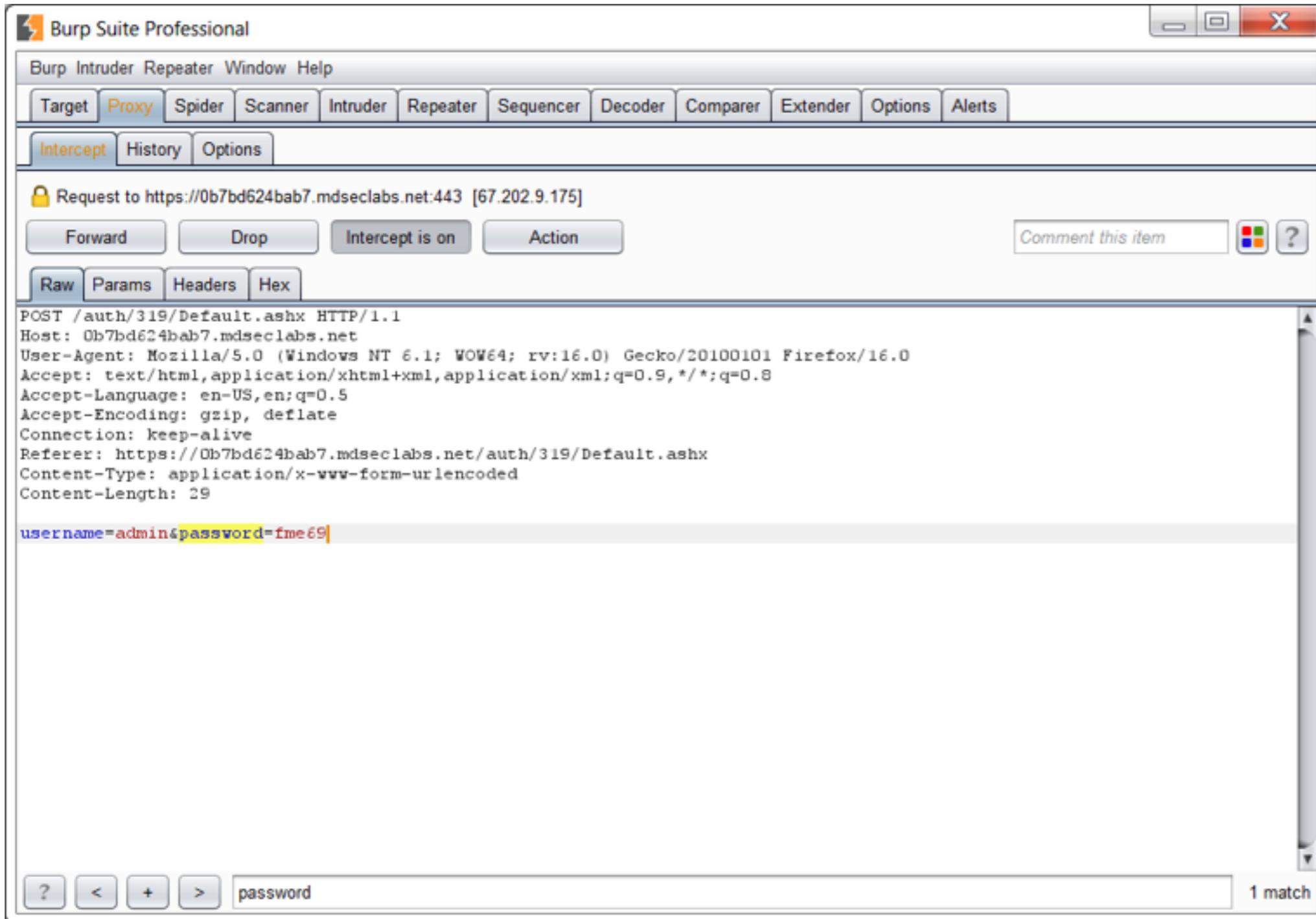
private static byte[] a(String paramString)
{
    int i = paramString.length();
    if (i % 2 == 1)
        throw new Exception("Invalid hex string");
    byte[] arrayOfByte = new byte[i / 2];
    for (int j = 0; ; j += 2)
    {
        if (j >= i)
            return arrayOfByte;
        arrayOfByte[(j / 2)] = ((byte)((Character.digit(paramString.charAt(j), 16) << 4) + Character.digit(paramString.charAt(j + 1), 16)));
    }
}

public static String b(Context paramContext, String paramString)
{

```

Mobile Application

Android Burp



The screenshot displays the Burp Suite Professional interface. The main window shows an intercepted request to `https://0b7bd624bab7.mdseclabs.net:443 [67.202.9.175]`. The request is a POST to `/auth/319/Default.ashx`. The raw request body is `username=admin&password=fme69`. The interface includes a menu bar with options like Target, Proxy, Spider, Scanner, Intruder, Repeater, Sequencer, Decoder, Comparer, Extender, Options, and Alerts. Below the menu, there are tabs for Intercept, History, and Options. The request details are shown in a text area, and a search bar at the bottom indicates a match for the word "password".

```
POST /auth/319/Default.ashx HTTP/1.1
Host: 0b7bd624bab7.mdseclabs.net
User-Agent: Mozilla/5.0 (Windows NT 6.1; WOW64; rv:16.0) Gecko/20100101 Firefox/16.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Referer: https://0b7bd624bab7.mdseclabs.net/auth/319/Default.ashx
Content-Type: application/x-www-form-urlencoded
Content-Length: 29

username=admin&password=fme69
```

Mobile Application

iOS

Mobile Application

iOS

tree - Directory Tree

iExplorder - file downloader from iPhone/iPad

strings - Getting strings from the binary

otool - Determine the binary. use -L for list the used library

class-dump-z - display the uses classes.

Cycript - runtime modification

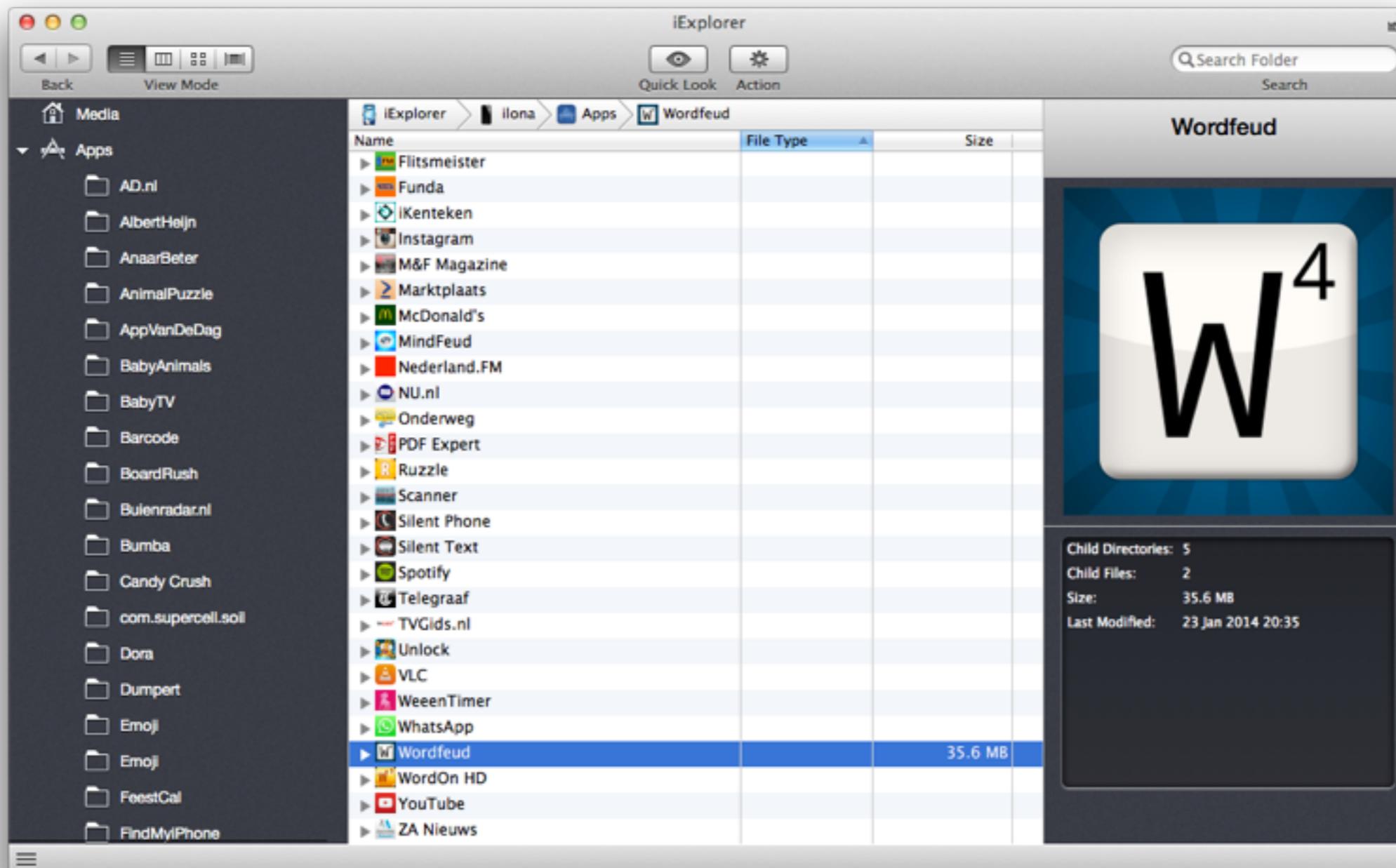
snoop-it - combination of all above.

burp-suite and Wireshark for traffic interception and analyse.

hopper - Disassemble

Mobile Application

iOS iExplorer



Voor intern gebruik



Mobile Application

iOS .app location

```
find /var/mobile/Applications/ -iname *.app
```

```
/var/mobile/Applications/793E0A43-06B5-4836-9BAA-5A7193F48E78/rws.app  
/var/mobile/Applications/85E58F55-0010-4382-AF3A-BA49ECD719D4/WebViewService.app  
/var/mobile/Applications/89F9DEE0-03C6-467D-AADE-835A0503A2B1/Instagram.app  
/var/mobile/Applications/920F3035-0901-4E4C-8CAD-8D339F2D1D6C/NederlandFM.app  
/var/mobile/Applications/956F49DF-91B1-42E0-8624-89F1FA529DE7/BoardRush.app  
/var/mobile/Applications/A0FAF4FD-60BA-4FCE-8F7D-D46D0AEDE751/DDActionsService.app  
/var/mobile/Applications/A9BC54FF-581B-40EB-968F-F3977DBD2957/Funda.app  
/var/mobile/Applications/AF790D74-D2D7-4725-997B-6DD24366FCB3/FindMyiPhone.app  
/var/mobile/Applications/B644E678-6813-43E9-B224-E9658D9F74EB/AlbertHeijn.app  
/var/mobile/Applications/BB7735F5-978D-46A3-8D06-96FEE6E33865/PDFExpertiPhone.app  
/var/mobile/Applications/C07D122A-E50B-4422-ADF8-CBC2485BBD60/AppVanDeDag.app  
/var/mobile/Applications/C3D00B8A-55EA-4BDC-B518-BEA0D1456479/com.mcpeppergames.AmazingAnimalPuzzleFKAT.app  
/var/mobile/Applications/C7187557-83BE-4697-874A-2FD8D6E740DA/BarcodeReader.app  
/var/mobile/Applications/D057B088-06AA-4B84-BA8E-AEFC559914A0/iKenteken.app  
/var/mobile/Applications/D2BC8039-3493-4B78-A939-CFB1AF04BCA4/Telegraaf.app  
/var/mobile/Applications/D2E22B3A-8FD6-45FA-BDB8-3754FF4B35B5/Spotify.app  
/var/mobile/Applications/D43706C0-4AA5-4B47-875D-4E3CC9A53E15/StoreKitUIService.app  
/var/mobile/Applications/DF7E3FAE-C1F8-4A30-A6C5-91967595495A/dumpert.app  
/var/mobile/Applications/ECCCF0FF-CCEE-41DE-93E8-426E7C526FF8/Wordfeud.app  
/var/mobile/Applications/ED80E78C-6D39-45D4-A8DB-D04B52695647/MindFeud.app  
/var/mobile/Applications/F445A651-43FE-4239-82E1-87D7D242EA4D/Library/Caches/nl.tvgids.app  
/var/mobile/Applications/F445A651-43FE-4239-82E1-87D7D242EA4D/TVGids.nl.app  
/var/mobile/Applications/F692221C-028C-4E36-9F79-F0F432CBEDB4/AD.nl.app
```

Mobile Application

iOS .ipa file tree

```
# tree -d -L 2
```

```
.  
|-- Documents  
|-- Library  
|   |-- Application\ Support  
|   |-- Caches  
|   |-- Cookies  
|   |-- FlurryFiles  
|   |-- Preferences  
|   `-- SyncedPreferences  
|-- StoreKit  
|-- Wordfeud.app  
|   |-- FinishedGameViewController.nib  
|   |-- FinishedGameViewController~ipad.nib  
|   |-- FinishedGamesPageViewController.nib  
|   |-- FriendStatsViewController.nib  
|   |-- NewGameViewController.nib  
|   |-- SC_Info  
|   |-- SelectRulesetViewController.nib  
|   |-- SettingsViewController.nib  
|   |-- _CodeSignature  
|   |-- de.lproj  
|   |-- en.lproj  
|   `-- nb.lproj  
`-- tmp
```

Mobile Application

iOS otool

Wordfeud.app root#

```
# file Wordfeud
Wordfeud: Mach-O arm_v7 executable
root@Xeno /Users/mark/Desktop/onderzoek
# otool -arch armv7 -l Wordfeud | grep crypt
cryptoff 16384
cryptsize 3833856
cryptid 1
```

Normal With GDB

```
Load application
Init application
read memory offsets
dump memory to file
dd memory part into application
set Cryptid to 0
```

```
ilona:~/bin root# clutch
usage: clutch [application name] [...]
Applications available: AD.nl AlbertHeijn AppVanDeDag BabyTVHQME
iPhone BarcodeReader BoardRush Buienradar Bumba candycrushsaga
ColorLEDFlashlightPro com.mcpeppergames.AmazingAnimalPuzzleFKAT
com.mcpeppergames.BabyAnimalsPuzzleFKAT DoraCrystalKingdom
dumpert Emoji Browser EmojiFree FindMyiPhone Flitsmeister Funda
Hay Day iKenteken Instagram Marktplaats McDonalds MindFeud
NederlandFM NU-Universal Onderweg PDFExpertiPhone Rumble
rws SchedJoules Spotify StreepjescodeScanner Telegraaf
TVGids.nl Unlock VLC for iOS VoipPhone WhatsApp
Wordfeud WordOn HD
```

```
ilona:~/bin root# clutch MindFeud
Cracking MindFeud...
/var/root/Documents/Cracked/MindFeud-v5.4.0.ipa
ilona:~/bin root#
```

Mobile Application

iOS strings

`cat app.binary | strings > output.txt` or `cat app.binary | strings | egrep '{10,15}'`

```
Wordfeud.app root# cat Wordfeud | strings | egrep '{10,15}' | grep "System"  
/System/Library/Frameworks/Security.framework/Security  
/System/Library/Frameworks/Twitter.framework/Twitter  
/System/Library/Frameworks/PassKit.framework/PassKit  
/System/Library/Frameworks/AdSupport.framework/AdSupport  
/System/Library/Frameworks/Social.framework/Social  
/System/Library/Frameworks/Accounts.framework/Accounts  
/System/Library/Frameworks/CoreMedia.framework/CoreMedia  
/System/Library/Frameworks/AssetsLibrary.framework/AssetsLibrary  
/System/Library/Frameworks/EventKitUI.framework/EventKitUI  
/System/Library/Frameworks/CoreLocation.framework/CoreLocation  
/System/Library/Frameworks/iAd.framework/iAd  
/System/Library/Frameworks/StoreKit.framework/StoreKit  
/System/Library/Frameworks/OpenAL.framework/OpenAL  
/System/Library/Frameworks/AddressBook.framework/AddressBook  
/System/Library/Frameworks/AddressBookUI.framework/AddressBookUI
```

Mobile Application

iOS otool

Wordfeud.app root# otool -L Wordfeud

Wordfeud:

```
/System/Library/Frameworks/Security.framework/Security (compatibility version 1.0.0, current version 1.0.0)
/System/Library/Frameworks/Twitter.framework/Twitter (compatibility version 1.0.0, current version 164.0.0)
/System/Library/Frameworks/PassKit.framework/PassKit (compatibility version 1.0.0, current version 1.0.0)
/System/Library/Frameworks/AdSupport.framework/AdSupport (compatibility version 1.0.0, current version 1.0.0)
/System/Library/Frameworks/Social.framework/Social (compatibility version 1.0.0, current version 87.0.0)
/System/Library/Frameworks/Accounts.framework/Accounts (compatibility version 1.0.0, current version 113.0.0)
/System/Library/Frameworks/CoreMedia.framework/CoreMedia (compatibility version 1.0.0, current version 1.0.0)
/System/Library/Frameworks/AssetsLibrary.framework/AssetsLibrary (compatibility version 1.0.0, current version 1.0.0)
/System/Library/Frameworks/EventKitUI.framework/EventKitUI (compatibility version 1.0.0, current version 1.0.0)
/System/Library/Frameworks/CoreLocation.framework/CoreLocation (compatibility version 1.0.0, current version
1613.5.2)
/System/Library/Frameworks/iAd.framework/iAd (compatibility version 1.0.0, current version 1.0.0)
```

Mobile Application

iOS otool disassemble

Wordfeud.app root# otool -tV Wordfeud

Wordfeud:

```
(__TEXT,__text) section
0000bad0    f1e2c293    strnvb ip, [r2, #35]!
0000bad4    d922ddb9    stmldb r2!, {r0, r3, r4, r5, r7, r8, r10, r11, ip, lr, pc}
0000bad8    788495c6    stmvca r4, {r1, r2, r6, r7, r8, r10, ip, pc}
0000badc    e709bdbc    undefined
0000bae0    df61fc60    swile 0x0061fc60
0000bae4    e8c461b8    stmia r4, {r3, r4, r5, r7, r8, sp, lr}^
0000bae8    88c1a83d    stmhii r1, {r0, r2, r3, r4, r5, r11, sp, pc}^
0000baec    86125f94    undefined
0000baf0    542d734b    strplt r7, [sp], #-843
0000baf4    fdc0f477    stcnvl 4, cr15, [r0, #476]
0000baf8    f2c39caf    sbcnv r9, r3, #44800 ; 0xaf00
0000bafc    7d4f82c5    stcvcl 2, cr8, [pc, #-788]
0000bb00    051d430c    ldreq r4, [sp, #-780]
0000bb04    34cd5e20    strccb r5, [sp], #3616
0000bb08    8eb1db74    mrchi 11, 5, sp, cr1, cr4, {3}
0000bb0c    45bfe95f    ldrmi lr, [pc, #2399]! ; 0xc473
0000bb10    79945d00    ldmvcib r4, {r8, r10, r11, ip, lr}
0000bb14    9929f457    stmlsdb r9!, {r0, r1, r2, r4, r6, r10, ip, sp, lr, pc}
0000bb18    94765d1d    ldrlsbt r5, [r6], #-3357
0000bb1c    ad8d9e91    stcge 14, cr9, [sp, #580]
```

Mobile Application

iOS class-dump-z

Wordfeud.app root#

```
class-dump-z -u armv7 Wordfeud
@interface DTPinLockController : XXUnknownSuperclass <UITextFieldDelegate> {
int mode;
NSArray* pins;
NSArray* pins2;
UITextField* hiddenTextField;
UILabel* message;
UILabel* message2;
UILabel* subMessage;
UINavigationController* navBar;
BOOL first;
NSString* pin;
id delegate;
UIViewController* baseViewController;
unsigned numberOfDigits;
}
@property(assign, nonatomic) id delegate;
@property(retain, nonatomic) NSString* pin;
@property(assign, nonatomic) unsigned numberOfDigits;
-(id)initWithMode:(int)mode;
-(void)viewWillAppear:(BOOL)view;
-(BOOL)shouldAutorotateToInterfaceOrientation:(int)interfaceOrientation;
```

Mobile Application

iOS cycript

Wordfeud.app root#

```
cycript -p APPname
```

```
cy# var myString = [ [ NSString alloc ] initWithString:
```

```
cy> @"Hello, world!" ];
```

```
"Hello, world!"
```

```
cy# *UIApp
```

```
cy# [i for (i in *UIApp)]
```

```
cy#NSObject.messages
```

```
{"cy$toCYON":":0x6c9d5f4,cy$JSType:0x6c9d5ec,"cy$hasProperty":":0x6c9d644,"cy$getProperty":":0x6c9d64c,"cy$getProperty:inContext":":0x6c9d654,"cy$getPropertyNames:inContext":":0x6c9d7f4,cy$box:0x6c9d5c0,"cy$setProperty:to":":0x6c9d7e4,"cy$deleteProperty":":0x6c9d7ec,"cy$valueOfInContext":":0x6c9d5e4,"cy$toJSON:inContext":":0x6c9d5c4,"__setSnoopiWatchDog":":0x4bdf99,"matchesATVPredicate:error":":0x107cc5,"replacementObjectForPortCoder":":0x30838091,classForPortCoder:0x30838081,"performSelector:onThread:withObject:waitUntilDone:modes":":0x306d9a85,"performSelectorOnMainThread:withObject:waitUntilDone:modes":":0x307029c9,"performSelectorInBackground:withObject":":
```

Mobile Application

iOS cycript

Wordfeud.app root#

```
cy# function printMethods(className) {
cy> var count = new new Type("I");
cy> var methods = class_copyMethodList(objc_getClass(className), count);
cy> var methodsArray = [];
cy> for(var i = 0; i < *count; i++) {
cy>   var method = methods[i];
cy>   methodsArray.push({selector:method_getName(method), implementation:method_getImplementation(method)});
cy> }
cy> free(methods);
cy> free(count);
cy> return methodsArray;
cy> }
```

```
cy# UIApp.keyWindow.rootViewController
#"<AppViewController: 0x16d660f0>"
```

```
cy# rootVC = UIApp.keyWindow.rootViewController
#"<AppViewController: 0x16d660f0>"
```

```
cy# rootVC.visibleViewController
cy# printMethods(AppViewController)
[{selector:@selector(prefersStatusBarHidden),implementation:0x113d3d},{selector:@selector(setPrefersStatusBarHidden:),implementation:0x113d4d},
{selector:@selector(dealloc),implementation:0x113499},{selector:@selector(nextResponder),implementation:0x113505},
{selector:@selector(preferredStatusBarStyle),implementation:0x1134f5},{selector:@selector(prefersStatusBarHidden),implementation:0x1134e5},
{selector:@selector(shouldAutorotate),implementation:0x113729},{selector:@selector(supportedInterfaceOrientations),implementation:0x11372d},
{selector:@selector(viewWillLayoutSubviews),implementation:0x113581},
```

Mobile Application

iOS cycript

```
cy# AppDelegate->isa.messages
{cy$hasImplicitProperties:0x6c9d7f8,"replacementObjectForPortCoder":":0x308380c5,"cancelPreviousPerformRequestsWithTarget:selector:object":":0x306bcde5,"cancelPreviousPerformRequestsWithTarget":":0x306cf6c1,"implementsSelector":":0x307756c9,"instancesImplementSelector":":0x3077565d,load:0x306ef761,"setVersion":":0x306f2511,version:0x307757a9,classForKeyedUnarchiver:0x30722161,classFallbacksForKeyedArchiver:0x30720db5,"_shouldAddObservationForwardersForKey":":0x306f62c9,"setKeys:triggerChangeNotificationsForDependentKey":":0x3076a849,"_keysForValuesAffectingValueForKey":":0x306f1b59,"automaticallyNotifiesObserversForKey":":0x306f3655,"keyPathsForValuesAffectingValueForKey":":0x306f1a55,"_createValueGetterWithContainerClassID:key":":0x306ec585,"_createValueSetterWithContainerClassID:key":":0x306f40f5,"_createValuePrimitiveGetterWithContainerClassID:key":":0x306ecc2d,"_createValuePrimitiveSetterWithContainerClassID:key":":0x306f42ed,"_createMutableOrderedSetValueGetterWithContainerClassID:key:"{selector:@selector(shouldAutorotateToInterfaceOrientation:),implementation:0x11361d},{selector:@selector(initWithNibName:bundle:),implementation:0x113459},{selector:@selector(willRotateToInterfaceOrientation:duration:),implementation:0x1135d9},{selector:@selector(didRotateFromInterfaceOrientation:),implementation:0x113619},{selector:@selector(setPreferredStatusBarStyle:),implementation:0x113d5d},{selector:@selector(setNextResponder:),implementation:0x113545}}
```

Mobile Application

iOS snoop-it

Marktplaats.app root#

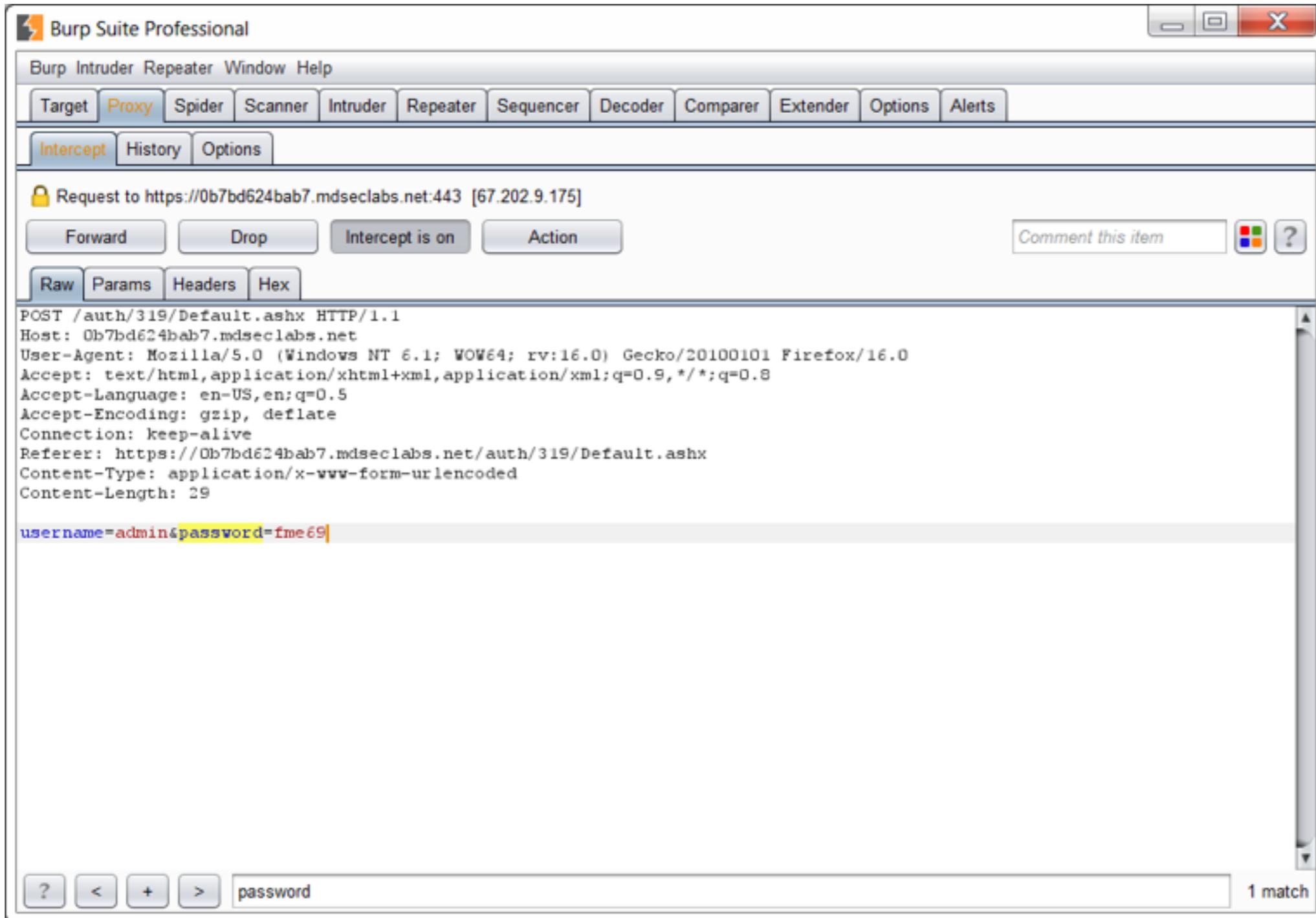
The screenshot displays the Snoop-it application interface. The top bar shows the application name 'Snoop-it' on the left and 'Marktplaats' with a connection status indicator on the right. The main window is divided into a left sidebar and a main content area. The sidebar contains several categories: Monitoring (Filesystem, Keychain, Network, Sensitive API, Common Crypto), Analysis (Objective-C Classes, View Controller, URL Schemes), and Runtime Manipulation (Hardware Identifier, Fake Location, Method Tracing). The 'Network' option is selected in the Monitoring section. The main content area shows the 'Network' tab active, displaying 'Network Access (HTTP requests using NSURLConnection)'. Below this, there is a 'Network Summary' section with checkboxes for 'Display MIME Types' (Text, Images, Others) and 'Display http/https' (Http, Https). A table lists the network requests:

ID	Timestamp	Protocol	URL	Query String
1	23.01.14 21:57:06	https://	settings.crashlytics.com	/spi/v1/platforms/ios/apps/com.marktplaats.iphone/settings?build_version=3.0&display_version=3.0&instance=8656acae3db108b0daa7a8e865b99c9135da7b02&source=4&icon_hash=3816e1fdb9ce28d4da3573fc437b39ee46f33012
2	23.01.14 21:57:09	http://	statisch.marktplaats.com	/html/mobile/version.html
4	23.01.14 21:57:10	https://	api.marktplaats.nl	/api3/config.json?api_ver=3.3&oauth_token=3va7c0phkrtq2v1j76f8v1eu9l&session=670AC3E7-40AF-4737-9AEF-4D7FCC5FC77B&app_ver=3.0&screenWidth=50&screenHeight=75
6	23.01.14 21:57:25	https://	api.marktplaats.nl	/api3/categories.json?api_ver=3.3&oauth_token=3va7c0phkrtq2v1j76f8v1eu9l&session=670AC3E7-40AF-4737-9AEF-4D7FCC5FC77B&app_ver=3.0&screenWidth=50&screenHeight=75
9	23.01.14 21:57:35	https://	ssl.google-analytics.com	/collect?v=mi3.0.0&cd1=Homepage&av=3.0&cd=%2FHP&cd8=WIFI&t=appview&cd18=Portrait&ul=nl&cd7=iOS7.0&cid=8c594647-13a5-41ae-9e17-11ef34e7ec80&_u=.tnoKoKoKoKoKoK-L&tid=UA-39872321-2&sr=320x480&v=1&cd6=iOS3.0&an=Marktplaats&cd9=iPhone+4S&ht=1390510647249&qt=8131&z=18068840164158659837

At the bottom of the interface, there is a 'Debug Report' button and a search bar. The status bar at the very bottom shows 'JSD OFF'.

Mobile Application

iOS Burp



The screenshot displays the Burp Suite Professional interface. The main window shows an intercepted request to `https://0b7bd624bab7.mdseclabs.net:443 [67.202.9.175]`. The request is a POST to `/auth/319/Default.ashx` with the following details:

- Host: `0b7bd624bab7.mdseclabs.net`
- User-Agent: `Mozilla/5.0 (Windows NT 6.1; WOW64; rv:16.0) Gecko/20100101 Firefox/16.0`
- Accept: `text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8`
- Accept-Language: `en-US,en;q=0.5`
- Accept-Encoding: `gzip, deflate`
- Connection: `keep-alive`
- Referer: `https://0b7bd624bab7.mdseclabs.net/auth/319/Default.ashx`
- Content-Type: `application/x-www-form-urlencoded`
- Content-Length: `29`

The request body is shown in the 'Raw' tab as `username=admin&password=fme69`. The interface includes navigation buttons like 'Forward', 'Drop', and 'Intercept is on', and a search bar at the bottom with the text 'password' and '1 match'.

Mobile Application

iOS Hopper

The screenshot displays the iOS Hopper application, a disassembler for ARMv7 code. The interface includes a menu bar with options like 'Read Executable', 'Back', 'Follow', 'D A C P', 'S X', and 'G CDB'. Below the menu is a toolbar with icons for 'Labels' and 'Strings'. A search bar on the left contains the text 'aes'. The main window shows assembly code for two subroutines: sub_9710 and sub_9734. The code is color-coded and includes comments such as '; Basic Block Input Regs: r1 r2 r7 sp lr pc - Killed Regs: r1 r2 r3 r7 r9 sp'. The assembly instructions include push, str, add, mov, ldr, blx, and pop. The bottom of the window shows a list of analysis segments and the current address: 'Address 0x9704, Segment __text, sub_96e0 + 36, file offset 0x8704'.

```
sub_9710:
; Basic Block Input Regs: r1 r2 r7 sp lr pc - Killed Regs: r1 r2 r3 r7 r9 sp
10 80B5      push      {r7, lr}                                ; XREF=0x1c054
----- BEGIN OF PROCEDURE -----
; Basic Block Input Regs: r1 r2 r7 sp lr pc - Killed Regs: r1 r2 r3 r7 r9 sp
10 80B5      push      {r7, lr}                                ; XREF=0x1c054
24 0093      str       r3, [sp, #0x4 + var_0]
26 7944      add      r1, pc                                    ; 0x3a688
28 4B46      mov      r3, r9
2a 0968      ldr      r1, [r1]                                ; @selector(AES256EncryptedDataUsingKey:iv:er
2c 27F00AEC  blx     imp__symbolstub1__objc_msgSend
30 01B0      add      sp, #0x4
32 80BD      pop      {r7, pc}
----- BEGIN OF PROCEDURE -----
; Basic Block Input Regs: r0 r1 r4 r5 r6 r7 sp lr pc - Killed Regs: r0 r1 r2 r3 r4 r5 r6 r7
sub_9734:
34 F0B5      push      {r4, r5, r6, r7, lr}                    ; XREF=0xe62e, 0xe65a, 0xe686, 0xe6b2, 0xe6d
36 0646      mov      r6, r0
38 40F61C30  movw    r0, #0xb1c
3c C0F20300  movt    r0, #0x3
40 41F27272  movw    r2, #0x1772
44 C0F20302  movt    r2, #0x3
48 7844      add      r0, pc                                    ; 0x3a268
4a 7A44      add      r2, pc                                    ; 0x3aec0
4c 0C46      mov      r4, r1
4e 0168      ldr      r1, [r0]                                ; @selector(alloc)
50 03AF      add      r7, sp, #0xc
52 1068      ldr      r0, [r2]                                ; @bind__OBJC_CLASS_$_NSString
54 27F0F6EB  blx     imp__symbolstub1__objc_msgSend
```

Mobile Application

Resources list

Snoop-it - <https://code.google.com/p/snoop-it/wiki/GettingStarted>

Cycrypt - <http://www.andreas-kurtz.de/2013/07/how-to-easily-spot-broken-cryptography.html>

Dex2Jar - <http://code.google.com/p/dex2jar/>

JD-GUI - <http://jd.benow.ca/>

otool - <https://github.com/gdbinit/otool-ng>

clutch - <https://github.com/KJCracks/Clutch/releases>