



Trends in der Forensik von Mobiltelefonen

Anwendertag IT-Forensik 2012
Fraunhofer SIT

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„Ein Smartphone bitte...“

Smartphone-Absatz steigt rasant

Absatz in Deutschland

Angaben in Mio. Stück

11,8

+31%

9,0

+58%

5,7

+14%

BITKOM

Umsatz in Deutschland

Angaben in Mrd. Euro

4,1

+13%

2,7

+7%

3,6

+37%

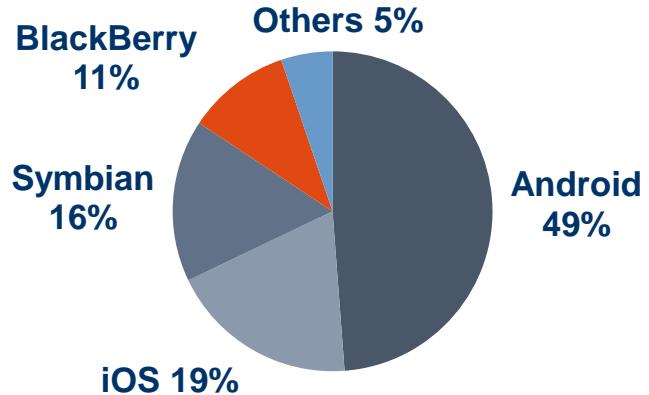
Quelle: EITO, IDATE

BITKOM

Worldwide smart phone market
Shipments by platform, full year 2011

Platform	Full year 2011		Growth Q4'11/Q4'10
	shipments	Share (%)	
Total	487.7	100.0%	62.7%
Android	237.8	48.8%	244.1%
iOS	93.1	19.1%	96.0%
Symbian	80.1	16.4%	-29.1%
BlackBerry	51.4	10.5%	5.0%
bada	13.2	2.7%	183.1%
Windows Phone	6.8	1.4%	-43.3%
Others	5.4	1.1%	14.4%

Source: Canalys estimates © Canalys 2012



Android, iOS und BlackBerry führend



#1 – Plattformen & Hersteller



Hersteller

Haier



LG Telit



Sony Ericsson

SANYO



HUAWEI

CASIO.

SIEMENS



UBIQUAM



NEC

SHARP

MEDIATEK

ASUS

SAGEM



TOSHIBA

lenovo



AUDIOVOX®

i-mate

Qtek

ZONDA

Diseño y comunicación en movimiento



jaga

NOKIA
Connecting People

ZTE 中兴

Plattformen



iDevices Hardware



Android



- Hersteller



Sony Ericsson



CREATIVE

ARCHOS



HUAWEI



MOTOROLA

SANYO

DELL

TOSHIBA

ZTE 中兴

lenovo.



ALCATEL
mobile phones

GARMINTM

PANTECH

Fake Phones & ...





#2 – Anschlußmöglichkeiten



Anschlüsse



Anschlüsse – Smartphones?







#3 – Betriebssysteme



Smartphone Betriebssysteme

Symbian

(Nokia, Samsung, LG, Sony Ericsson, etc.)

OS 9.1	OS 9.2	OS 9.3	OS 9.4	Symbian Platform							
S60				Symbian Platform							
3.0	3.1	3.2	5.0	Symbian^2				Symbian^3		Symbian^4	
3rd Edition	3rd Edition, Feature Pack 1	3rd Edition, Feature Pack 2	5th Edition (Symbian^1)								

Research in Motion BlackBerry OS

(BlackBerry)

4.1 Branch	4.2 Branch	4.5 Branch	4.6 Branch	4.7 Branch	5.0 Branch							
4.1.0	4.2.1	4.5.0	4.6.0	4.6.1	4.7.0	4.7.1						5.0.0

Apple iPhone OS

(iPhone, iPod Touch, iPad)

1.0	1.1	2.0	2.1	2.2	3.0	3.1	3.2	4.0
1.0.1	1.0.2	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	2.0.1	2.0.2

Microsoft Windows CE

(HTC, Samsung, LG, Toshiba, Sony Ericsson, Dell, Acer, etc.)

(KIN 1, KIN 2)

(Zune, Zune HD)

5.0	5.2	6.0												
Microsoft Windows Mobile				Microsoft Windows Phone 7				Microsoft KIN OS		Microsoft Zune OS				
5.0	6.0	6.1	6.5	6.5.1	6.5.3	6.5.5	7.0			1.0	1.x Branch	2.x Branch	3.x Branch	4.x Branch

Linux - Smartphones

(HTC, Samsung, LG, Toshiba, Sony Ericsson, Dell, Acer, etc.)

(Nokia)

(Nokia, LG, Intel, etc.)

(Palm)

(Samsung)

Google Android				Maemo	MeeGo	webOS								bada							
1.5	1.6	2.0	2.1	5.0	1.0 (Maemo 6.0)	1.0/1.1 Branch	1.2 Branch	1.3 Branch	1.4 Branch	1.0.2	1.0.3	1.0.4	1.1.0	1.2.0	1.2.1	1.3.1	1.3.5	1.3.5.1	1.4.0	1.4.1.1	1.x
Google Chrome OS/Chromium OS				Intel Moblin	Ubuntu Netbook Edition																
Alpha Stages				2.0	2.1	8.04 (LTS)	8.10	9.04	9.10	10.04 (LTS)					10.10						

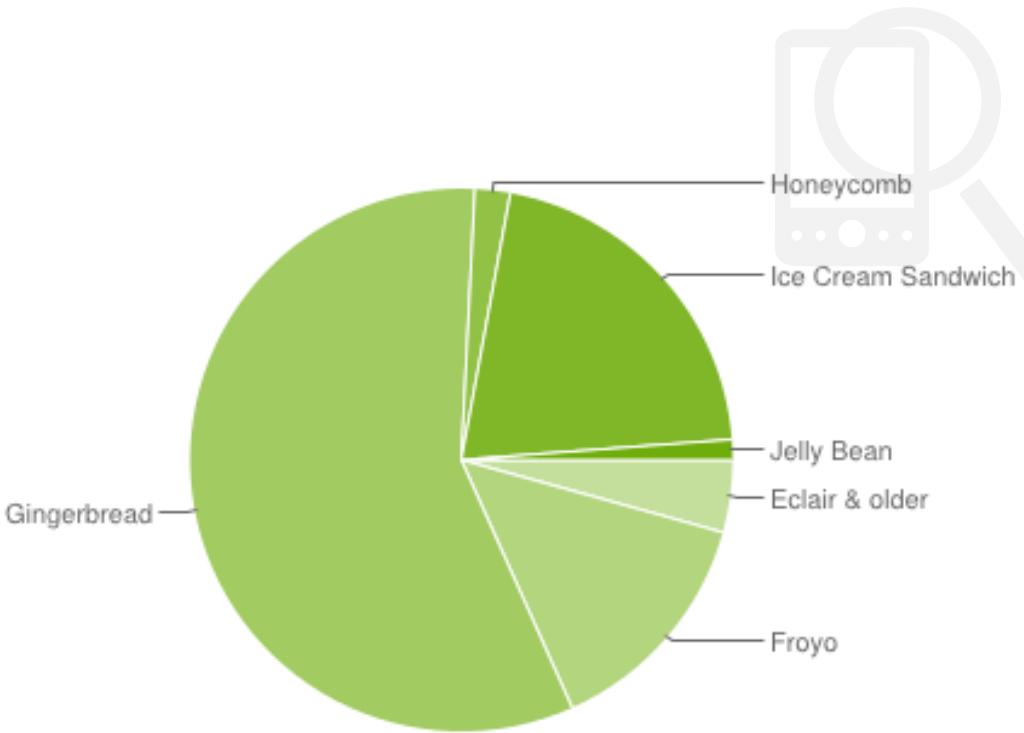
Linux - Netbooks

Apple iOS Versions



Android Versionen

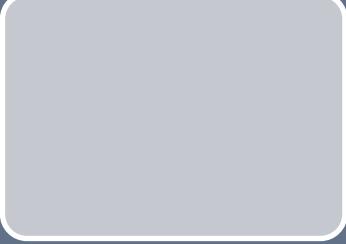
Version	Codename	Distribution
1.5	Cupcake	0.2%
1.6	Donut	0.4%
2.1	Eclair	3.7%
2.2	Froyo	14%
2.3 - 2.3.2 2.3.3 - 2.3.7	Gingerbread	0.3% 57.2%
3.1 3.2	Honeycomb	0.5% 1.6%
4.0 - 4.0.2 4.0.3 - 4.0.4	Ice Cream Sandwich	0.1% 20.8%
4.1	Jelly Bean	1.2%





#4 – Daten Extraktion





Logisch

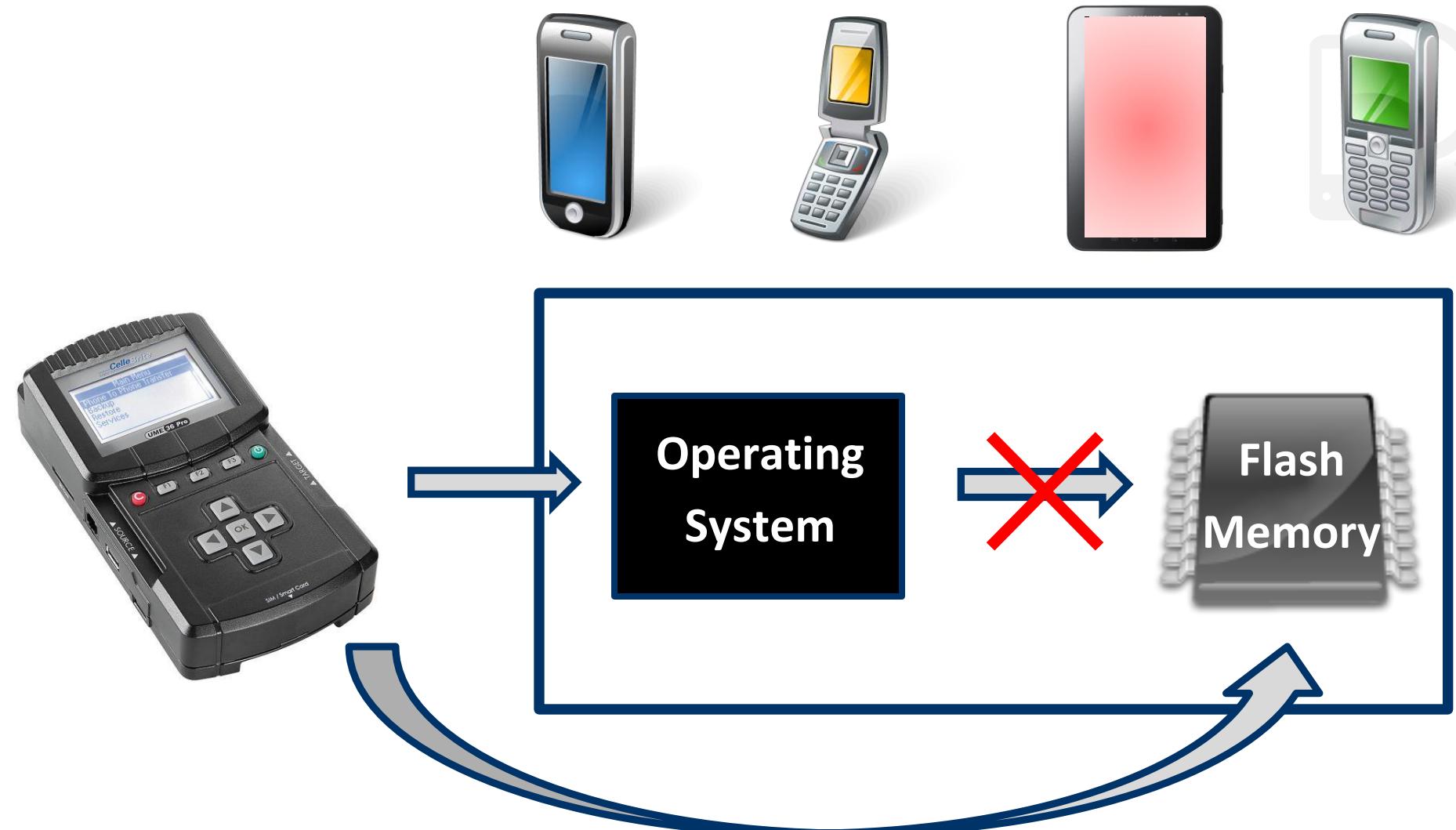


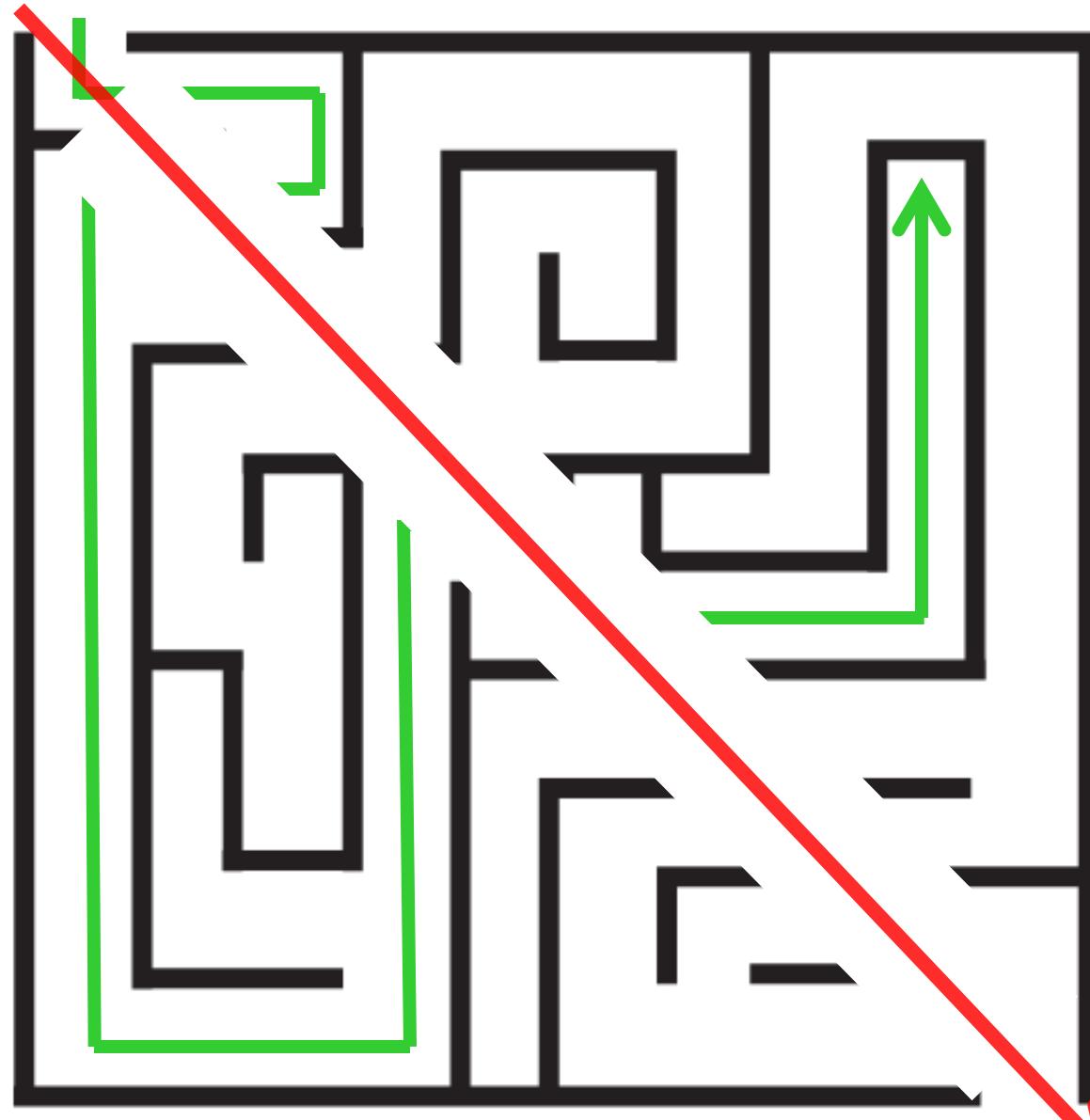
Dateisystem



Physikalisch

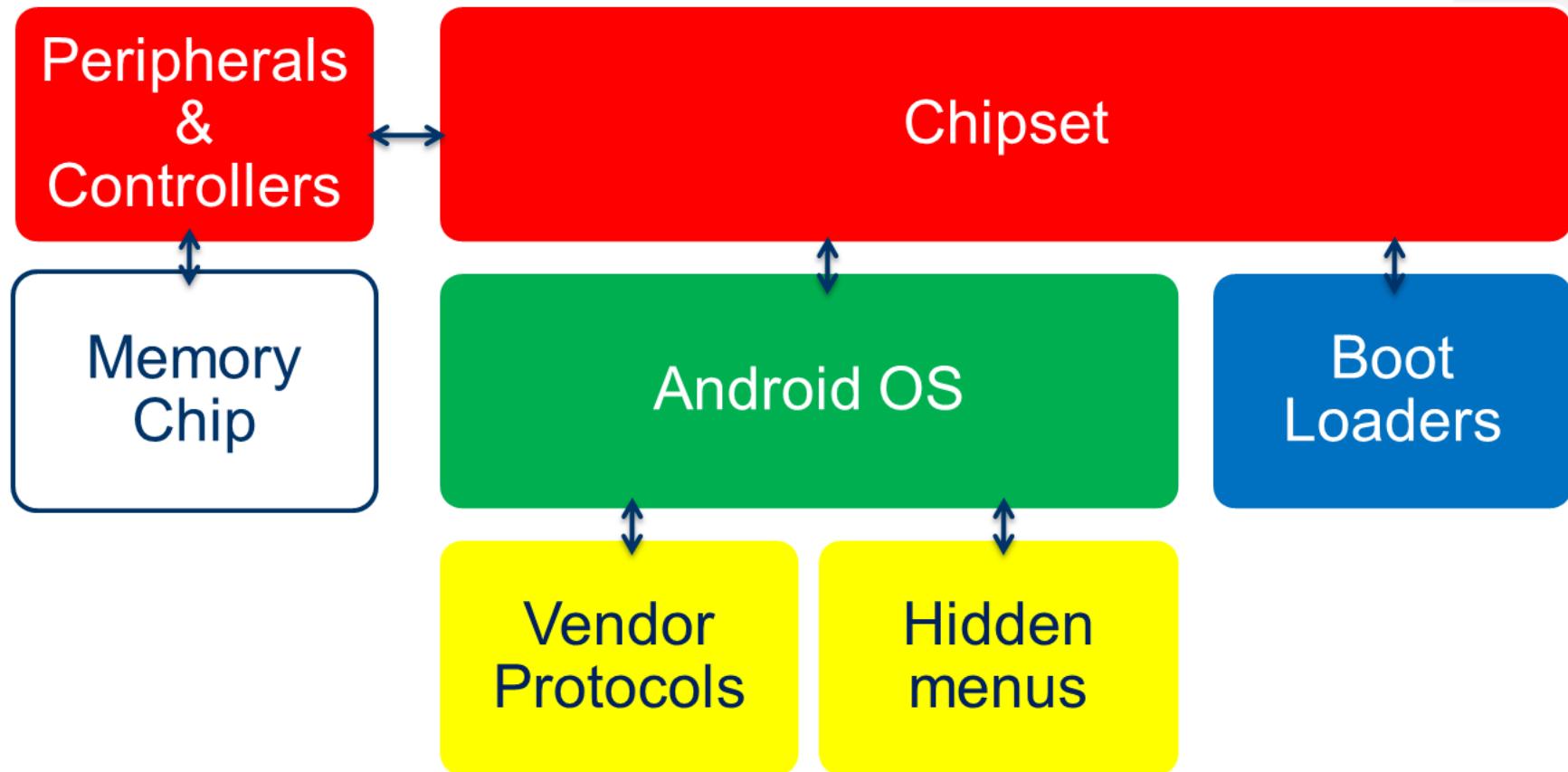
Forensic Extraction







Architektur



Android



- Hersteller



Sony Ericsson



CREATIVE

ARCHOS



HUAWEI



MOTOROLA

SANYO

DELL

TOSHIBA

ZTE 中兴

lenovo.

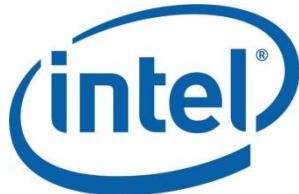


GARMIN
PANTECH

Android



- Allerdings verwenden diese Hersteller die unterschiedlichsten Chipsätze



Architektur – Flash Speicher



- Die meisten Geräte haben mehr als einen Speicherchip
 - Galaxy S II
 - OneNAND - 512 MB
 - MoviNAND - 16 GB
 - SD Card – bis zu 32 GB

TOSHIBA

QUALCOMM®

hynix

intel®

MARVELL®


SAMSUNG

Micron™



#5 – Dateisysteme



Computer

FAT

NTFS

HFS



Mobiltelefon

Motorola
Sony Ericsson
XSR
I855
JFFS
OSE
SymbianFS
DCT4
MCU
P2K
INOD
Yaffs
EFS2
QCP



Smartphone Dateisysteme



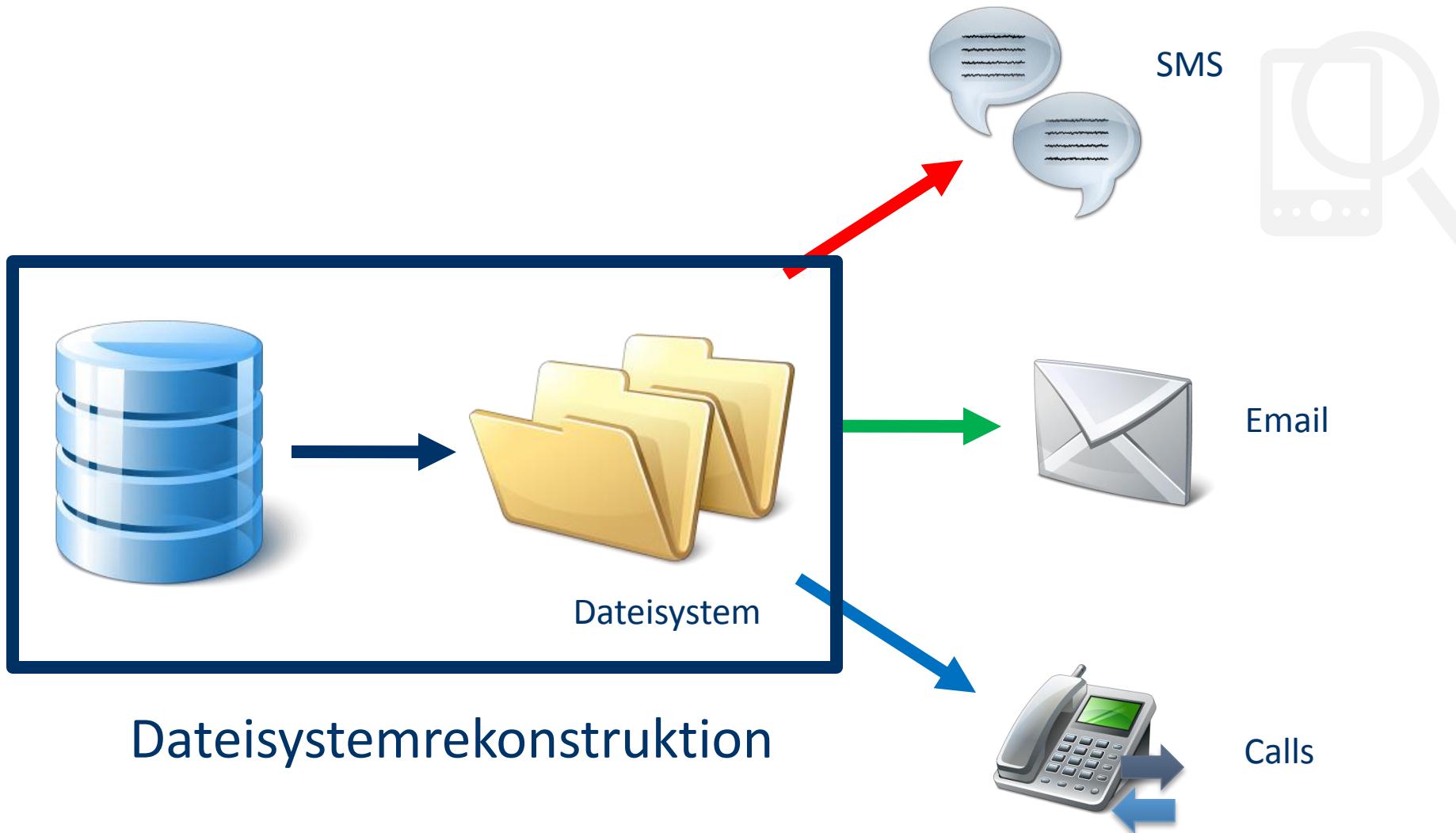
- Android
 - YAFFS2
 - FAT32
 - Ext2
 - Ext3
 - Ext4
- iOS
 - HFS
 - HFS+
- BlackBerry
 - ??? ☺



#6 – Dekodierung

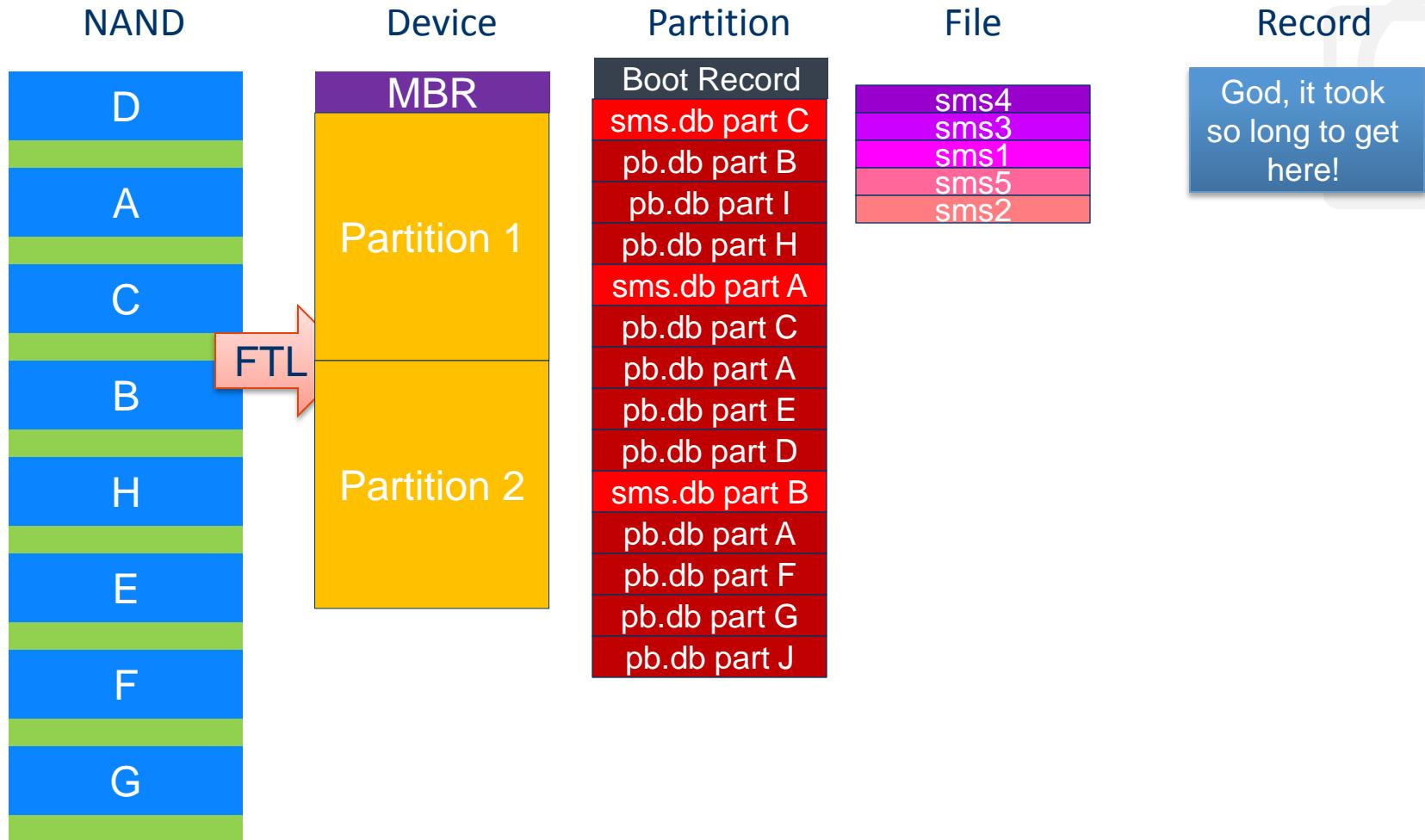


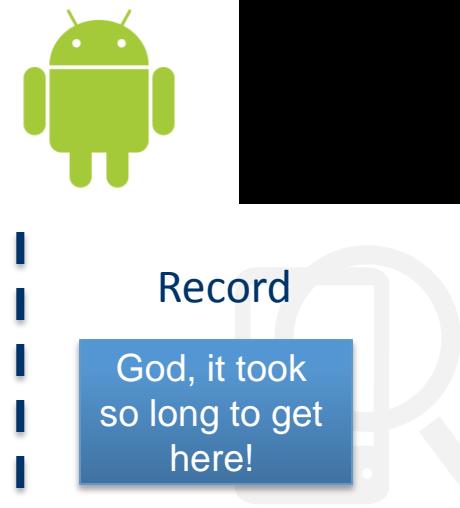
Dekodierung



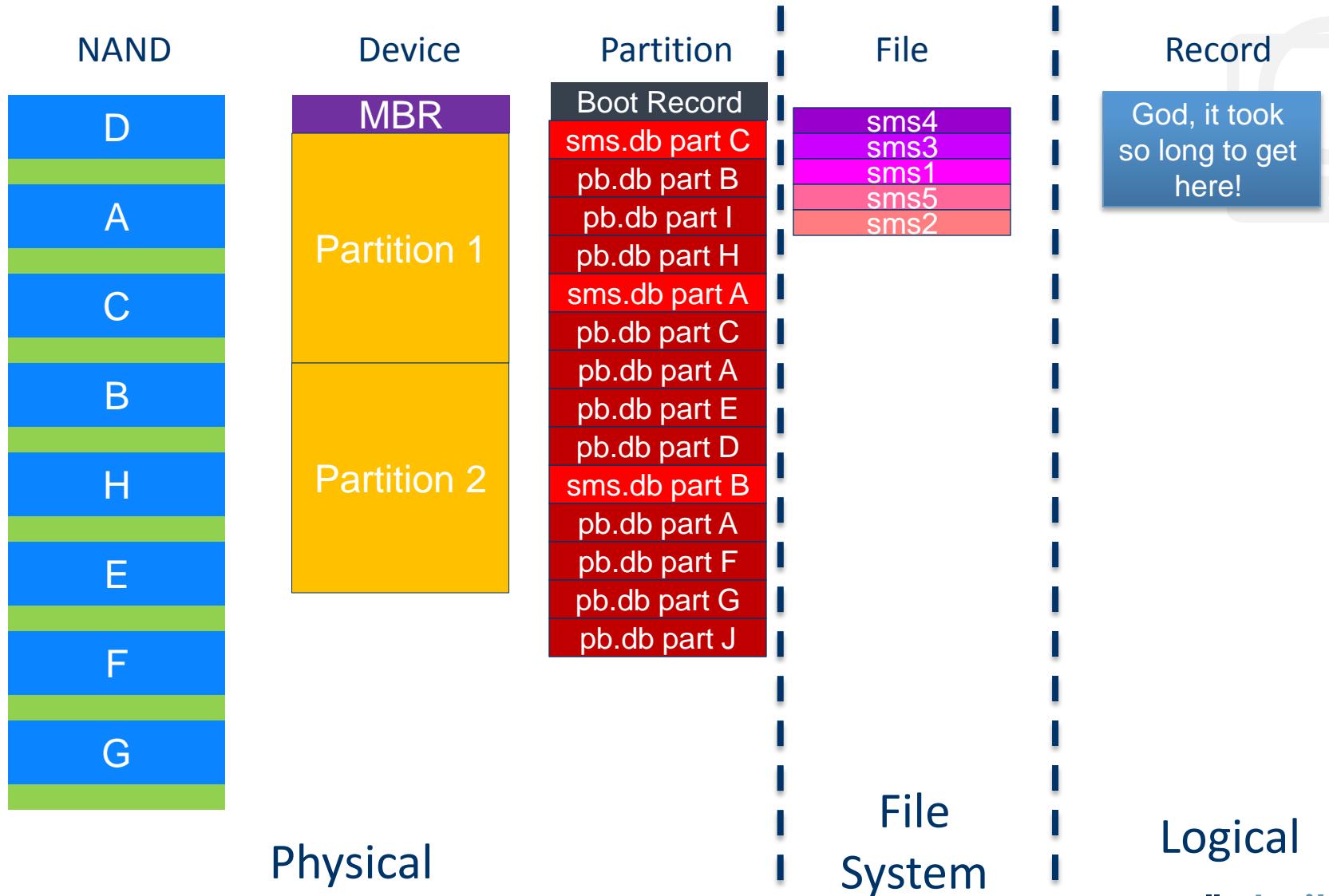


Dekodierung





Dekodierung

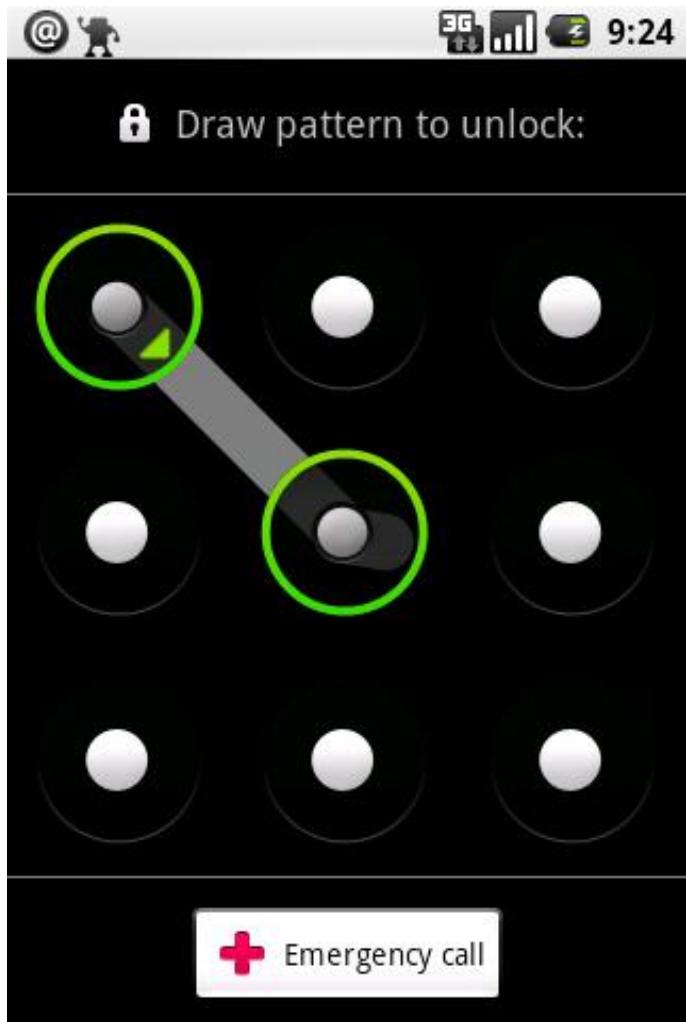




#7 – Gerätesperre



Sperrcodes



Wiederherstellung

Physical Analyzer

File View Tools Python Plug-ins Report Help

Project Tree

GalaxyS

- Extraction Summary
- Device Info
- Images
- Memory Ranges
- File Systems
 - NO NAME
 - NO NAME_0
 - NO NAME_1
 - NO NAME_2
 - NO NAME_3
 - NO NAME_4
- Analyzed Data
 - Contacts (35)
 - SMS Messages (7)
 - Web Bookmarks (1)
- Bookmarks (0)
- Data files
 - Images (106)
 - Videos (6)
 - Audio (9)
 - Text (216)
 - Databases (60)
- Tags
- Reports

Extraction Summary

Device Information

GalaxyS Samsung I9000 Galaxy S (Android)

Generate Report

Unlock Pattern

3->2->1->4->7->8->9

Image Hash Information

Hashes have been calculated for this project, but no reference data is available.

Show Details

Device Info

Unlock Pattern 3->2->1->4->7->8->9

Device Content

Phone Data

iOS Physical 3.0

Passcode erfolgreich wiederhergestellt

Passcode wiederhergestellt: '0022' in 00:00:04.

100%

Der Passcode wurde für diese Sitzung gespeichert.

< Zurück zu den Extraktionsoptionen

Gerät ausschalten und herunterfahren

The screenshot shows the Cellebrite Physical Analyzer interface. In the center, a 'Device Info' window displays the 'Unlock Pattern' as '3->2->1->4->7->8->9'. A red oval highlights this pattern entry field. To the right, a diagram illustrates the 3x3 unlock pattern with numbered circles (1-9) and arrows indicating the sequence. Below the diagram, a separate window titled 'iOS Physical 3.0' shows the message 'Passcode erfolgreich wiederhergestellt' (Passcode restored successfully) and 'Passcode wiederhergestellt: '0022' in 00:00:04.' At the bottom, a progress bar is at 100%, and a note says 'Der Passcode wurde für diese Sitzung gespeichert.' (The passcode was saved for this session).



#8 – Verschlüsselung

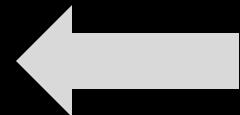


Keychain Decryption

Passwords



9 (0)



iPhone_3GS_4.3-4.3.1_Physical_Extraction_25
Extraction Summary

Welcome X Extraction Summary X

Passwords (9) X

Table View



Table Search

<input checked="" type="checkbox"/>	#	Del?	Access group	Account	Data	Generic attribute	Label	Server	Service
<input checked="" type="checkbox"/>	1		apple	Cellebrite1	[REDACTED]				AirPort
<input checked="" type="checkbox"/>	2		com.apple.apsd		[REDACTED]		APSPublicTokens		push.apple.com
<input checked="" type="checkbox"/>	3		apple	qacellebrite@gmail.com	[REDACTED]				com.apple.itunes...
<input checked="" type="checkbox"/>	4		apple	Private	[REDACTED]				com.apple.mana...
<input checked="" type="checkbox"/>	5		apple	OTA	[REDACTED]				AirPort
<input checked="" type="checkbox"/>	6		apple	00:19:88:0A:7D:5F	[REDACTED]				MobileBluetooth
<input checked="" type="checkbox"/>	7		apple	jack123445@gmail.com	[REDACTED]			smtp.gmail.com	
<input checked="" type="checkbox"/>	8		apple	qacellebrite@gmail.com	[REDACTED]			imap.gmail.com	
<input checked="" type="checkbox"/>	9		apple	qacellebrite@gmail.com	[REDACTED]			smtp.gmail.com	

Emails (191)

Installed Applications (91)

Instant Messages (11)

Locations (2334)

MMS Messages (1)

Notes (1)

Passwords (9)

SMS Messages (9)

User Accounts (4)

User Dictionary (50)

Web History (15)

Wireless Networks (2)

Bookmarks (0)

Data files

Images (18686)

cellebrite
mobile data secured

Pattern Code

Generate an SHA-1 hash for the pattern. Not the most secure

```
* is in a location only readable by the system process.
* @param pattern the gesture pattern.
* @return the hash of the pattern in a byte array.
*/
private static byte[] patternToHash(List<LockPatternView.Cell> pattern) {
    if (pattern == null) {
        return null;
    }

    final int patternSize = pattern.size();
    byte[] res = new byte[patternSize];
    for (int i = 0; i < patternSize; i++) {
        LockPatternView.Cell cell = pattern.get(i);
        res[i] = (byte) (cell.getRow() * 3 + cell.getColumn());
    }
    try {
        MessageDigest md = MessageDigest.getInstance("SHA-1");
        byte[] hash = md.digest(res);
        return hash;
    } catch (NoSuchAlgorithmException nsa) {
        return res;
    }
}
```



Decryption of iOS File System



Welcome X Extraction Summary X Extraction Summary X _NEW-ALheader.jpg X

Hex View | Image view **File Info**

Find:

Extended Attributes

com.apple.system.cprotect	3EDD5BB6BA16312D17EAC0FE022A1432A3FFC3746AC9BA40EEAAA96DBC29CEB0B10C0EFC34DC8EC5
Protection class	4

Date & Time

Creation time	7/25/2011 4:37:07 PM (UTC+00:00)
Modify time	7/25/2011 4:37:07 PM (UTC+00:00)
Last access time	7/25/2011 4:37:07 PM (UTC+00:00)

General

File size	7368 Bytes
Chunks	1

Offsets

Data offset	0x1381BC000
-------------	-------------

Facebook Decryption



Welcome X Extraction Summary X Results (facebook) X friends.db X

Database view Hex View File Info |

friend	phone	cell	email
meta	fcda2731a6d74cf273	42268b2943be012c1f05cc726c16704c	0c181e3ef3a79ffb4003dd84e8ecc74b70a72ee26afcb7f680d53a596ee04165 7f9e61d5f73c4d2dd91d1a88bf3a58f0be84a36a975d1353263301e15fa597b4
			4393006d846d9a8f29aab0268607142c34030203239bfad473dc99a7eda1948 a2721fce0517b7135240bcbcaa3fa572963be5396a7675c7dd79014d459ef804
			f0baabfdd4cbf005d0ef6cdadecfa61828da963a50984247aee971a1d33a12d9 1d9f53ff82ac2390effa40dc247ff63d766871bdf7eba8c4b7aeacf492bba5b9
			4b032f399fecdb287cd6c0a638c820adc06ad06f9c9fc413781737dbccc9f1f65

Phone and email values are encrypted

Welcome X Extraction Summary X Facebook (84) X

Table View |

Decryption of email and phone details

#	Name	Entry #1	Entry #2	Entry #3	Entry #4	Entry #5	Source
1	Roxanne Weizman	507492149	http://profile.ak.fbcdn.net/hp...	15147268910	ron@celebrite.com	caramel267@hot...	Facebook
2	Ron Serber	53026107	http://b.static.ak.fbcdn.net/s...		robertino9@gmail.com		Facebook
3	Roberto Ashkenazi	573169535	http://profile.ak.fbcdn.net/hp...		ruthbougamim@gmail.com		Facebook
4	Ruth Bougamim	624919218	http://profile.ak.fbcdn.net/hp...		efratx@gmail.com		Facebook
5	Ray Molnar	765711288	http://profile.ak.fbcdn.net/hp...		enavberes@hotmail.com		Facebook
6	Efrat Levy	522669099	http://profile.ak.fbcdn.net/hp...		eyalh@praxell.com		Facebook
7	Enav Beres-Alperin	582335767	http://profile.ak.fbcdn.net/hp...	972508537190	972777537190	razi@integrity-pro...	Facebook
8	Eyal Harel	600287956	http://profile.ak.fbcdn.net/hp...		law.shaked@gmail.com		Facebook
9	Elad Raz	722610272	http://profile.ak.fbcdn.net/hp...		edofuchs@gmail.com		Facebook
10	Etti Shaked	725114503	http://profile.ak.fbcdn.net/hp...		972506657467	michalseker@yahoo.com	Facebook
11	Edo Fuchs	1421887586	http://profile.ak.fbcdn.net/hp...				Facebook
12	Michal Seker	531043185	http://profile.ak.fbcdn.net/hp...				Facebook

Tiger Text Decryption

Physical Analyzer

File View Tools Python Plug-ins Report Help

Project Tree

iPhone_4_(GSM)_4.3.4-4.3.5_File_Sy

- Extraction Summary
- Device Info
- Images
- Memory Ranges
- File Systems
- Archive
- Analyzed Data
 - Application Usage (8)
 - Call Log (1)
 - Chats (5)
 - TigerText (5)
 - Contacts (1)
 - Installed Applications (33)
 - Locations (1601)
 - SMS Messages (1)
 - User Dictionary (9)
 - Wireless Networks (1)
- Bookmarks (0)
- Data files
 - Images (1630)
 - Videos
 - Audio
 - Text (5)
 - Databases (59)

Welcome X Extraction Summary TigerText (5) X

Table View

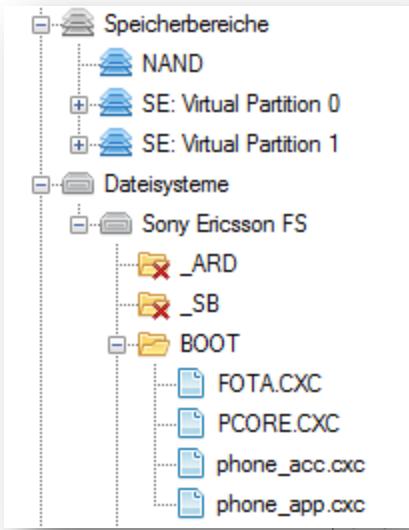
#	Del?	Expand	Identifier	Start Time	Participants	Last Activity
1	<input checked="" type="checkbox"/>	Expand			[REDACTED]	[REDACTED]
2	<input checked="" type="checkbox"/>	Expand			[REDACTED]	[REDACTED]
3	<input checked="" type="checkbox"/>	Expand			[REDACTED]	[REDACTED]
4	<input checked="" type="checkbox"/>	Expand			[REDACTED]	[REDACTED]
5	<input checked="" type="checkbox"/>	Expand			[REDACTED]	[REDACTED]



#9 – Gelöschte Daten



Gelöschte Daten



Logical Analyzer

View Tools Python Plug-ins Report Help

Database view

File Tree

Welcome

Database view

B4ADscriptCache
Bookmarks.db
Cache.db
Calendar.sqlite
call_history.db
calldata.db
ChatStorage.sqlite
CityInfo.db
claritas.db
clarusx6.sqlite
com.apple.AdLib
com.apple.iAd.cookieb
com.apple.itunesstored.2.sqlite
consolidated.db
consolidated.db
Contacts.data
countryCode.sqlite
data.sqlite
Databases.db
ddd.itdbm
deliveryreportstore.db
Dynamic.itdb

CellLocation

CellLocationBoxes
CellLocationBoxes_node
CellLocationBoxes_parent
CellLocationBoxes_rowid
CellLocationCounts
Names
Points
WifiLocation
WifiLocationCounts

Name: Jess James
Source:
Group:



Phone numbers and Emails

Work 15148697249

	MCC	MNC	LAC	CI	Timestamp	Latitude	Longitude
	102	40	7682	-1	0	52.12254105	4.7516584
	105	448	8	-1	0	33.86618613	-118.1346
	108	22	16648	-1	0	43.35637449	-79.97263
	109	61	2582	-1	0	38.91247808	-76.98335
	110	492	32017	-1	0	34.0650761	-84.02229
	111	93	61786	-1	0	39.2601823	-118.2784
	115	124	81	-1	0	48.83949636	2.3577861
	115	300	65288	-1	0	33.91740559	-117.5213
	123	418	4380	-1	0	40.90331553	-72.53784
	124	926	20773	-1	0	39.63364004	-84.18137
	131	932	8748	-1	0	33.91151403	-84.39479
	132	1424	12844	-1	0	40.76489208	-73.69103
	134	1422	12588	-1	0	40.77140091	-73.71278
	140	22	17698	-1	0	38.37317883	-122.6908
	140	907	16385	-1	0	40.73182939	-73.99122
	141	22	17442	-1	0	37.74893545	-122.2444
	142	22	17186	-1	0	38.00547265	-122.3437
	143	22	14114	-1	0	37.72787242	-121.9204
	145	22	13090	-1	0	37.23366761	-121.9045
	146	32	8748	-1	0	43.66575717	-79.39094
	146	122	8748	-1	0	43.66575717	-79.39094



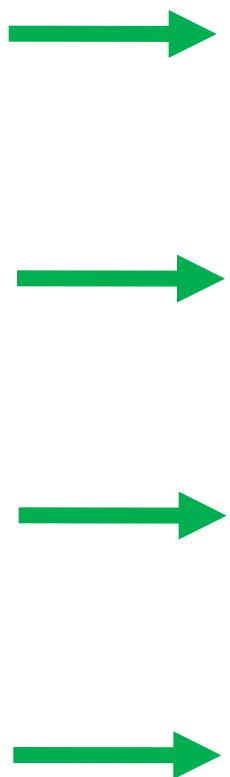
#9 – App's, App's, App's...



Decoding



DECODE



Decoding

Phone Data

Application Usage  15 (0)	Calendar  446 (5)	Call Log  34 (0)	Chats  4 (0)	Contacts  1049 (45)	Installed Applications  39 (0)
Instant Messages  9 (0)	IP Connections  95 (0)	Locations  508 (0)	MMS Messages  2 (0)	Notes  17 (0)	Passwords  13 (0)
SMS Messages  43 (5)	User Accounts  17 (0)	User Dictionary  1313 (0)	Web Bookmarks  3 (0)	Web History  7 (0)	Wireless Networks  45 (0)

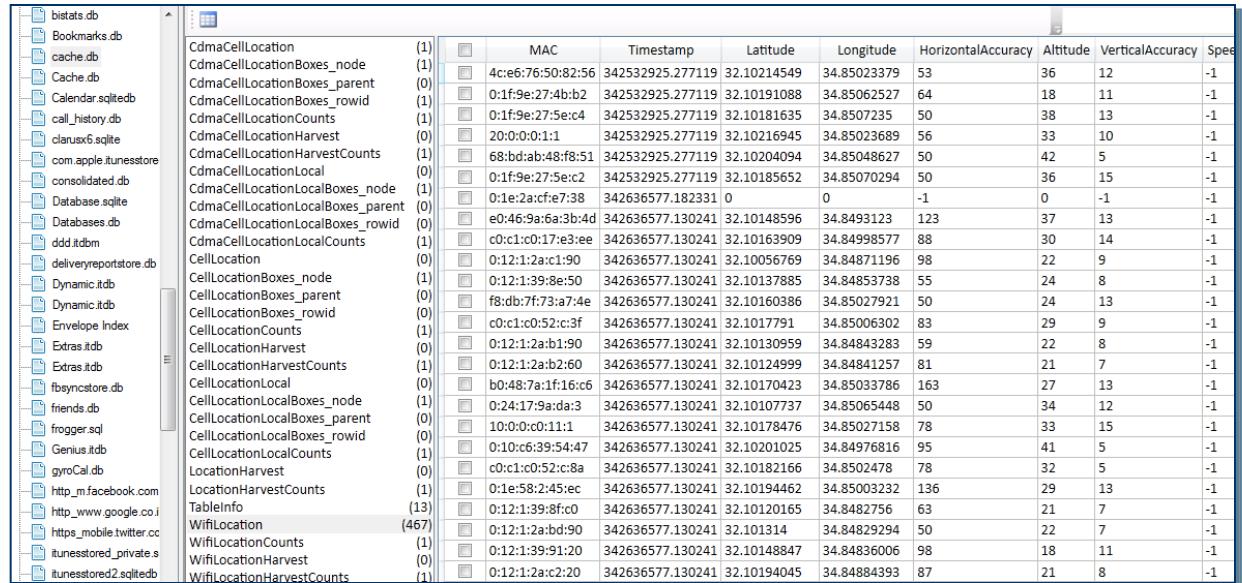
Data Files

Images  10245 (68)	Videos  19 (0)	Audio  141 (0)	Text  170 (2)	Databases  98 (0)	Configurations  3032 (106)
---	---	---	--	--	---

SQLite Database

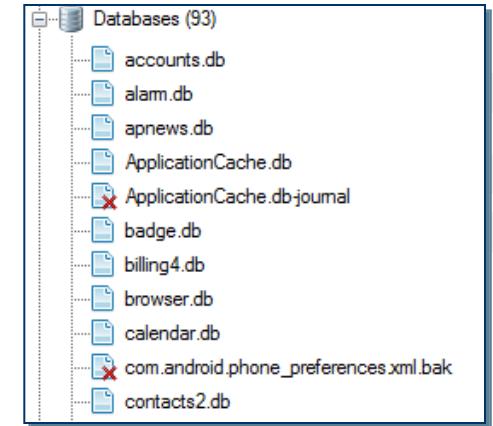
- Great sources for information
- Available and deleted databases
- Deleted entries from a database
- Ability to view tables and content

Search



The screenshot shows the SQLite Manager interface. On the left, a sidebar lists various SQLite databases. In the main area, a table view displays data from the 'CellLocation' table. The columns include MAC, Timestamp, Latitude, Longitude, HorizontalAccuracy, Altitude, VerticalAccuracy, and Speed. The table contains numerous rows of location data.

		MAC	Timestamp	Latitude	Longitude	HorizontalAccuracy	Altitude	VerticalAccuracy	Speed
	CdmaCellLocation	(1)							
	CdmaCellLocationBoxes_node	(1)	4:c:e6:76:50:82:56	342532925.277119	32.10214549	34.85023379	53	36	12
	CdmaCellLocationBoxes_parent	(0)	0:1:f9:e2:27:4b:b2	342532925.277119	32.10191088	34.85062527	64	18	11
	CdmaCellLocationBoxes_rowid	(1)	0:1:f9:e2:27:5e:c4	342532925.277119	32.10181635	34.8507235	50	38	13
	CdmaCellLocationCounts	(1)	20:0:0:0:11	342532925.277119	32.10216945	34.85023689	56	33	10
	CdmaCellLocationHarvest	(0)	68:bd:ab:48:f8:51	342532925.277119	32.10204094	34.85048627	50	42	5
	CdmaCellLocationHarvestCounts	(1)	0:1:f9:e2:27:5e:c2	342532925.277119	32.10181652	34.85070294	50	36	15
	CdmaCellLocationLocal	(0)	0:1:e2:a:c:f7:38	342636577.182331	0	0	-1	0	-1
	CdmaCellLocationLocalBoxes_node	(1)	e0:45:9a:6:a:3b:4d	342636577.130241	32.10148596	34.8493123	123	37	13
	CdmaCellLocationLocalBoxes_parent	(0)	c0:c1:0:17:e3:ee	342636577.130241	32.10163909	34.84998577	88	30	14
	CdmaCellLocationLocalBoxes_rowid	(0)	0:12:1:2a:c1:90	342636577.130241	32.10056769	34.84871196	98	22	9
	CdmaCellLocationLocalCounts	(1)	0:12:1:39:e:50	342636577.130241	32.10137885	34.84853738	55	24	8
	CdmaCellLocationLocalHarvest	(0)	f8:db:7:f7:3:a:74:e	342636577.130241	32.10160386	34.85027921	50	24	13
	CdmaCellLocationLocalHarvestCounts	(1)	c0:c1:c0:52:c:3f	342636577.130241	32.1017791	34.85006302	83	29	9
	CdmaCellLocationLocalNodes	(0)	0:12:1:2a:b1:90	342636577.130241	32.10130959	34.84843283	59	22	8
	CdmaCellLocationLocalRows	(0)	0:12:1:2a:b2:60	342636577.130241	32.10124999	34.84841257	81	21	7
	CdmaCellLocationLocalTables	(0)	b0:48:7:a:1:f16:c6	342636577.130241	32.10170423	34.85033786	163	27	13
	CdmaCellLocationLocalTables_node	(1)	0:24:17:9:a:da:3	342636577.130241	32.10107737	34.85065448	50	34	12
	CdmaCellLocationLocalTables_parent	(0)	10:0:0:0:11:1	342636577.130241	32.10178476	34.85027158	78	33	15
	CdmaCellLocationLocalTables_rowid	(0)	0:10:c6:39:54:47	342636577.130241	32.10201025	34.84976816	95	41	5
	CdmaCellLocationLocalTables_rowid2	(1)	c0:c1:c0:52:c:80	342636577.130241	32.10182166	34.8502478	78	32	5
	CdmaCellLocationLocalTables_rowid3	(1)	0:1:e:58:2:45:ec	342636577.130241	32.10194462	34.85003232	136	29	13
	CdmaCellLocationLocalTables_rowid4	(1)	0:12:1:39:8:f0	342636577.130241	32.10120165	34.8482756	63	21	7
	CdmaCellLocationLocalTables_rowid5	(1)	0:12:1:2a:bd:90	342636577.130241	32.101314	34.84829294	50	22	7
	CdmaCellLocationLocalTables_rowid6	(0)	0:12:1:39:91:20	342636577.130241	32.10148847	34.84836006	98	18	11
	CdmaCellLocationLocalTables_rowid7	(1)	0:12:1:2a:c2:20	342636577.130241	32.10194045	34.84884393	87	21	8



The screenshot shows the SQLite Manager interface with a focus on the 'Databases' list. It displays 93 databases, including accounts.db, alarm.db, apnews.db, ApplicationCache.db, ApplicationCache.db-journal, badge.db, billing4.db, browser.db, calendar.db, com.android.phone_preferences.xml.bak, and contacts2.db. Some database files have a red X icon next to them, indicating they are deleted or corrupt.

Databases (93)
accounts.db
alarm.db
apnews.db
ApplicationCache.db
ApplicationCache.db-journal
badge.db
billing4.db
browser.db
calendar.db
com.android.phone_preferences.xml.bak
contacts2.db

Easily search for additional vital information

Herausforderungen

Vielfalt an
Smartphones
Herstellern, Betriebs-
systemen

Gesperrte Geräte

Datenverschlüsselung

Gelöschte Daten

App's, App's, App's



**Physical / File System / Logical
Extraction aller mobiler
Endgeräte**

Umgehen von Sperren

**Entschlüsselung
verschlüsselter Inhalte**

Wiederherstellung aller Daten

**Auswertung von 500.000+
App's**

Auswertung

Zeitachse

#	Ric	Typ	Timestamp	Teilnehmer	Beschreibung	Lesezeichen-
25.01.2011 (182 items)						
87		Call	25.01.2011 22:36:21(UTC+0)	To: +14186888351 Home	To: +14186888351 Home	
88		CalendarEntry	25.01.2011 20:30:00(UTC+0)		QHS vs SSF	
89		CalendarEntry	25.01.2011 20:30:00(UTC+0)		QHS vs SSF	
90		CalendarEntry	25.01.2011 19:45:00(UTC+0)		Won't let go-rascal flats	
91		CalendarEntry	25.01.2011 19:45:00(UTC+0)		Won't let go-rascal flats	
92		SMS	25.01.2011 19:18:01(UTC+0)	To: +14185635306 Mon Am...	Jarrive dns 8	
93		SMS	25.01.2011 19:17:21(UTC+0)	From: +14185635306 Mon...	Where are you?	
94		SMS	25.01.2011 19:05:57(UTC+0)	To: +14186702099 Dad	Allright txt u later love u	
95		SMS	25.01.2011 19:05:28(UTC+0)	From: +14186702099 Dad	I'm waiting for Marisa mommy is at a meeting. Love you	
96		SMS	25.01.2011 19:04:43(UTC+0)	To: +14186702099 Dad	In 15 hour u guys	
97		SMS	25.01.2011 19:04:19(UTC+0)	From: +14186702099 Dad	Have you arrived son	
98		SMS	25.01.2011 18:35:54(UTC+0)	From: 5000	Rogers welcomes you abroad! Travel Packs help you save http...	
99		SMS	25.01.2011 18:33:36(UTC+0)	From: +14185737706 Steph...	Haha c'est bon!	
100		SMS	25.01.2011 18:31:00(UTC+0)	To: +14185737706 Steph P...		
101		SMS	25.01.2011 18:27:40(UTC+0)	From: +14185737706 Steph...		
102		SMS	25.01.2011 18:27:38(UTC+0)	From: +14187174141 Gab...		
103		SMS	25.01.2011 18:24:48(UTC+0)	To: +14185737706 Steph P...		
104		SMS	25.01.2011 18:22:46(UTC+0)	From: +14185737706 Steph...		
105		SMS	25.01.2011 17:04:05(UTC+0)	To: +14187174141 Gab Te...		
106		SMS	25.01.2011 17:02:36(UTC+0)	From: +14187174141 Gab...		
107	(1)	Email	25.01.2011 16:05:02(UTC+0)	American Coaching Acad...	Justin Robert	
108		Email	25.01.2011 16:05:02(UTC+0)	American Coaching Acad...	Justin Robert	
109		InstantMessage	25.01.2011 15:46:42(UTC+0)	From: 2330A772 Kayles	To: 22CC2C18 J Rob	
110		SMS	25.01.2011 15:46:17(UTC+0)	To: +14185635306 Mon Am...		
111		SMS	25.01.2011 15:45:58(UTC+0)	From: +14185635306 Mon...		
112		InstantMessage	25.01.2011 15:45:34(UTC+0)	From: 22CC2C18 J Rob	To: 2330A772 Kayles	
113		SMS	25.01.2011 15:45:07(UTC+0)	To: +14185635306 Mon Am...		
114		InstantMessage	25.01.2011 15:44:32(UTC+0)	From: 2330A772 Kayles	To: 22CC2C18 J Rob	
115		SMS	25.01.2011 15:42:55(UTC+0)	From: +14185635306 Mon...		
116		SMS	25.01.2011 15:42:12(UTC+0)	To: +14185635306 Mon Am...		
117		InstantMessage	25.01.2011 15:41:45(UTC+0)	From: 22CC2C18 J Rob	To: 2330A772 Kayles	
118		SMS	25.01.2011 15:41:21(UTC+0)	From: +14185635306 Mon...		
119		InstantMessage	25.01.2011 15:38:10(UTC+0)	From: 2330A772 Kayles	To: 22CC2C18 J Rob	
120		InstantMessage	25.01.2011 15:37:41(UTC+0)	From: 22CC2C18 J Rob	To: 2330A772 Kayles	

Beobachtungslisten-Editor

Beobachtungslisten

Pete Liste

Beschreibung eingeben ...

Text zum Filtern eingeben ...

Automatisch aktivieren

Schlüsselwörter

Neu Text zum Filtern eingeben ...

Eingabewert	Groß-/Kleinschreibung	Ganzes Wort	Farbe
Kuchen	<input type="checkbox"/>	<input type="checkbox"/>	█
Teilchen	<input type="checkbox"/>	<input type="checkbox"/>	█
Kekse	<input type="checkbox"/>	<input type="checkbox"/>	█
Muffins	<input type="checkbox"/>	<input type="checkbox"/>	█
Plätzchen	<input type="checkbox"/>	<input type="checkbox"/>	█

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