Test Results for Mobile Device Acquisition Tool:
MD-NEXT v1.89.18.1119 – MD-RED v3.7.22.1017

Contents

Introduction

The Computer Forensics Tool Testing (CFTT) program is a joint project of the Department of Homeland Security, Science and Technology Directorate (S&T), the National Institute of Justice (NIJ), and the National Institute of Standards and Technology Special Program Office (SPO) and Information Technology Laboratory (ITL). CFTT is supported by other organizations, including the Federal Bureau of Investigation, the U.S. Department of Defense Cyber Crime Center, U.S. Internal Revenue Service Criminal Investigation Division Electronic Crimes Program, and the U.S. Department of Homeland Security's Bureau of Immigration and Customs Enforcement, U.S. Customs and Border Protection and U.S. Secret Service. The objective of the CFTT program is to provide measurable assurance to practitioners, researchers, and other applicable users that the tools used in computer forensics investigations provide accurate results. Accomplishing this requires the development of specifications and test methods for computer forensics tools and subsequent testing of specific tools against those specifications.

Test results provide the information necessary for developers to improve tools, users to make informed choices, and the legal community and others to understand the tools' capabilities. The CFTT approach to testing computer forensics tools is based on well-recognized methodologies for conformance and quality testing. Interested parties in the computer forensics community can review and comment on the specifications and test methods posted on the CFTT Web site (http://www.cftt.nist.gov/).

This document reports the results from testing HancomWITH MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017 across supported mobile devices and associated media e.g., smart phones, tablets and UICCs.

Test results from other tools can be found on the S&T-sponsored digital forensics web page, http://www.dhs.gov/science-and-technology/nist-cftt-reports.

How to Read This Report

This report is divided into four sections. Section 1 identifies and provides a summary of any significant anomalies observed in the test runs. This section is sufficient for most readers to assess the suitability of the tool for the intended use. Section 2 identifies the mobile devices used for testing. Section 3 lists testing environment, the internal memory data objects used to populate the mobile devices. Section 4 provides an overview of the test case results reported by the tool.

Test Results for Mobile Device Acquisition Tool

Tool Tested: MD-NEXT, MD-RED

Software Version: MD-NEXT:v89.18.1119, MD-RED:v3.7.22.1017

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1   Results Summary

HancomWITH's MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017 was tested for its ability to acquire active data from the internal memory of supported mobile devices and associated media (i.e., smart phones, tablets, Universal Integrated Circuit Card / subscriber identification module (UICCs/SIMs)). Except for the following anomalies, the tool acquired all supported data objects completely and accurately for all mobile devices tested.

***Personal Information Management (PIM) data*:**
- Memo related data is not reported. (Devices: *Motorola Droid Turbo 2, HTC 10, Motorola Z Force, Motorola G5 Plus, Motorola X Pure Edition, Sony Xperia*)

***Stand-alone files*:**
- Audio files are note reported. (Device: *iPhone 5S*)
- Documents are not reported. (Device: *iPhone 5S*)

Social media Data:
- Social media related data (i.e., LinkedIn) is not reported. (Devices: *HTC 10*)
- Social media related data (i.e., LinkedIn) is partially reported. (Devices: *Galaxy S5, Galaxy S9*)
- Social media related data (i.e., Instagram) is partially reported. (Device: *HTC 10, Galaxy Tab S2, Droid Turbo 2*)
- Social media related data (i.e., Facebook, Twitter, LinkedIn, Instagram) is not reported. (Device: *Motorola Z Force*)
- Social media related data (i.e., Facebook, Twitter, LinkedIn, SnapChat, Pinterest, WhatsApp) is not reported. (Device: *Motorola G5 Plus*)
- Social media related data (i.e., Facebook, Twitter, LinkedIn, Instagram, SnapChat, Pinterest, WhatsApp) is not reported. (Devices: *Motorola X Pure Edition, Sony Xperia*).

- Social media related data (i.e., Facebook, LinkedIn) is partially reported. (Device: *iPhone 5S*)
- Social media related data (i.e., Facebook, Instagram) is partially reported. (Devices: *iPhone 6S Plus, iPhone 7*)
- Social media related data (i.e., Facebook, Twitter, LinkedIn, Instagram, Snapchat) is partially reported. (Device: *iPhone 8*)
- Social media related data (i.e., LinkedIn, Snapchat) is partially reported. (Device: *iPhone X*)
- Social media related data (i.e., Pinterest) is not reported. (Device: *iPad Mini, iPad Air, iPhone 8, iPhone X*)
- Social media related data (i.e., Facebook, LinkedIn) is partially reported. (Device: *iPad Mini, iPad Air*)

Internet Related Data:
- Browser (i.e., history, bookmarks) related data is not reported. (Devices: *HTC 10, Motorola Z Force, Motorola G5 Plus, Motorola X Pure Edition, Sony Xperia*)
- Email related data is not reported. (Devices: *HTC 10, Motorola Z Force, Motorola G5 Plus, Motorola X Pure Edition, Sony Xperia*)

GPS Related Data:
- GPS related data (i.e., longitude, latitude coordinates) are not reported for associated Maps navigational apps. (Devices: *Motorola G5 Plus, Motorola X Pure Edition, iPhone 5S, iPhone 6S Plus*)

UICC Acquisition:
- UICC data acquisition ended in Errors.

For more test result details see section 4.

2 Mobile Devices

The following table lists the mobile devices used for testing MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017.

Make	Model	OS	Firmware	Network
Apple iPhone	5S	iOS 7.1 (11D167)	2.18.02	CDMA
Apple iPhone	6S Plus	iOS 9.2.1 (13C75)	1.23.00	CDMA
Apple iPhone	7	iOS 10.2 (14C92)	1.33.00	CDMA
Apple iPhone	8	iOS 11.4.1 (15G77)	1.89.00	CDMA
Apple iPhone	X	iOS 11.3.1 (15E302)	1.89.00	CDMA
Apple iPad	Air	iOS 11.2.1 (11D167)	2.18.02	CDMA
Apple iPad	Mini	iOS 11.3.1 (15E302)	4.52.00	CDMA
Samsung Galaxy	S5 SM-G900V	Android 4.2.2	G900V.05	CDMA
Motorola Droid	Turbo2	Android 5.1.1	LCK23.130-23	CDMA
HTC 10	HTC6545LVW	Android 6.0.1	1.85.605.8.8.0_g CL774095	CDMA
Samsung GS7 Edge	GS7 Edge SM-G935V	Android 6.0.1	MMB29M.G935VVRS4APH1	CDMA
Samsung J3	J3 – SM-J320V	Android 6.0.1	MMB29M.J320VVRU2AP12	CDMA
Motorola	Z Force XT1650	Android 7.0	NCLS25.86-11-4	CDMA
Moto	G5Plus	Android 7.0	NPNS25137924	CDMA
Moto	X Pure Edition	Android 7.0	25.211.1	CDMA
Samsung Galaxy	S9	Android 8.0.0	G960U1UEU1ARB7	CDMA
Sony	Xperia	Android 8.0.0	471A2324	CDMA
Samsung Galaxy	Tab S2	Android 5.1.1	LMY47X.T817BVRU2AOJ2	CDMA

Table 1: Mobile Devices

3 Testing Environment

The tests were run in the NIST CFTT lab. This section describes the selected test execution environment, and the data objects populated onto the internal memory of mobile devices.

3.1 Execution Environment

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017 were installed on Windows 10 Pro version 10.0.14393.

3.2 Internal Memory Data Objects

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017 were measured by analyzing acquired data from the internal memory of pre-populated mobile devices. Table 2 defines the data objects and elements used for populating mobile devices provided the mobile device supports the data element.

Data Objects	Data Elements
Address Book Entries	*Regular Length*
	Maximum Length
	Special Character
	Blank Name
	Regular Length, email
	Regular Length, graphic
	Regular Length, Address
	Deleted Entry
	Non-Latin Entry
	Contact Groups
PIM Data: Datebook/Calendar; Memos	*Regular Length*
	Maximum Length
	Deleted Entry
	Special Character
	Blank Entry
Call Logs	*Incoming*
	Outgoing
	Missed
	Incoming – Deleted
	Outgoing – Deleted
	Missed - Deleted
Text Messages	*Incoming SMS – Read*
	Incoming SMS – Unread
	Outgoing SMS
	Incoming EMS – Read
	Incoming EMS – Unread
	Outgoing EMS
	Incoming SMS – Deleted
	Outgoing SMS – Deleted
	Incoming EMS – Deleted
	Outgoing EMS – Deleted
	Non-Latin SMS/EMS
MMS Messages	*Incoming Audio*
	Incoming Graphic
	Incoming Video
	Outgoing Audio
	Outgoing Graphic
	Outgoing Video

Data Objects	Data Elements
Application Data	*Device Specific App Data*
Stand-alone data files	*Audio*
	Graphic
	Video
	Audio – Deleted
	Graphic - Deleted
	Video - Deleted
Internet Data	*Visited Sites*
	Bookmarks
	E-mail
Location Data	*GPS Coordinates*
	Geo-tagged Data
Social Media Data	*Facebook*
	Twitter
	LinkedIn
	Instagram
	Pinterest
	SnapChat
	WhatsApp

Table 2: Internal Memory Data Objects

4 Test Results

This section provides the test cases results reported by the tool. Sections 4.1 – 4.3 identify the mobile device operating system type, media (e.g., Android, iOperatingSystem (iOS), UICC) and the make and model of mobile devices used for testing MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017.

The *Test Cases* column (internal memory acquisition) in sections 4.1 - 4.3 are comprised of two sub-columns that define a particular test category and individual sub-categories that are verified when acquiring the internal memory for supported mobile devices and UICCs within each test case. Each individual sub-category row results for each mobile device/UICC tested. The results are as follows:

As Expected: the mobile forensic application returned expected test results – the tool acquired and reported data from the mobile device/UICC successfully.

Partial: the mobile forensic application returned some of data from the mobile device/UICC.

Not As Expected: the mobile forensic application failed to return expected test results – the tool did not acquire or report supported data from the mobile device/UICC successfully.

NA: Not Applicable – the mobile forensic application is unable to perform the test or the tool does not provide support for the acquisition for a particular data element.

4.1 Android Mobile Devices

The internal memory contents for Android devices were acquired and analyzed with MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017. All test cases pertaining to the acquisition of supported Android devices were successful with the exception of the following.

- Memo related data is not reported for the Motorola Droid Turbo 2, HTC 10, Motorola Z Force, Motorola G5 Plus, Motorola X Pure Edition and Sony Xperia.
- Social media related data (i.e., LinkedIn) is not reported for the HTC 10.
- Social media related data (i.e., LinkedIn) is partially reported (i.e., account, profile related information) for the Galaxy S5 and Galaxy S9.
- Social media related data (i.e., Instagram) is partially reported (i.e., account, profile related information) for the HTC 10, Galaxy Tab S2 and Droid Turbo 2.
- Social media related data (i.e., Facebook, Twitter, LinkedIn, Instagram) is not reported for the Motorola Z Force.
- Social media related data (i.e., Facebook, Twitter, LinkedIn, SnapChat, Pinterest, WhatsApp) is not reported for the Motorola G5 Plus.
- Social media related data (i.e., Facebook, Twitter, LinkedIn, Instagram, SnapChat, Pinterest, WhatsApp) is not reported for the Motorola X Pure Edition and Sony Xperia.
- Browser (i.e., history, bookmarks) related data is not reported for the HTC 10, Motorola Z Force, Motorola G5 Plus, Motorola X Pure Edition and Sony Xperia.
- Email related data is not reported for the HTC 10, Motorola Z Force, Motorola G5 Plus, Motorola X Pure Edition and Sony Xperia.
- GPS related data (i.e., longitude, latitude coordinates) is not reported for the Motorola G5 Plus and Motorola X Pure Edition.

See Table 3a, 3b below for more details.

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017							
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Android*					
		Galaxy S5	Motorola Droid Turbo 2	HTC 10	Samsung GS7 Edge	Samsung J3	Motorola Z Force	Motorola G5 Plus
Acquisition	Acquire All	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Disrupted	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Reporting	Preview-Pane	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Equipment/ User Data	International Mobile Equipment Identity (IMEI)	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Mobile Equipment Identifier Electronic / Serial Number (MEID/ESN)	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Mobile Station International Subscriber Directory Number (MSISDN)	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
PIM Data	Contacts	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Calendar	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Memos/ Notes	*As Expected*	*Not As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*Not As Expected*	*Not As Expected*
Call Logs	Incoming	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Missed	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Short Message Service (SMS) Messages	Incoming	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*

					Mobile Device Platform: Android				
Test Cases – Internal Memory Acquisition		Galaxy S5	Motorola Droid Turbo 2	HTC 10	Samsung GS7 Edge	Samsung J3	Motorola Z Force	Motorola G5 Plus	
Multimedia Messaging Service (MMS) Messages	Graphic	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Audio	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Video	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Stand-alone Files	Graphic	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Audio	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Video	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Application Data	Documents (txt, pdf files)	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Social Media Data	Facebook	As Expected	As Expected	As Expected	As Expected	As Expected	Not As Expected	Not As Expected
	Twitter	As Expected	As Expected	As Expected	As Expected	As Expected	Not As Expected	Not As Expected
	LinkedIn	Partial	As Expected	Not As Expected	As Expected	As Expected	Not As Expected	Not As Expected
	Instagram	NA	Partial	Partial	As Expected	NA	Not As Expected	Not As Expected
	Pinterest	NA	NA	NA	NA	NA	NA	Not As Expected
	SnapChat	NA	NA	NA	NA	NA	NA	Not As Expected
	WhatsApp	NA	NA	NA	NA	NA	NA	Not As Expected
Internet Data	Bookmarks	As Expected	As Expected	Not As Expected	As Expected	As Expected	Not As Expected	Not As Expected
	History	As Expected	As Expected	Not As Expected	As Expected	As Expected	Not As Expected	Not As Expected
	Email	As Expected	As Expected	Not As Expected	As Expected	As Expected	Not As Expected	Not As Expected
GPS Data	Coordinates/ Geo-tagged	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	Not As Expected
Non-Latin Character	Reported in native format	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Hashing	Case File/ Individual Files	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017							
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Android*					
		Galaxy S5	Motorola Droid Turbo 2	HTC 10	Samsung GS7 Edge	Samsung J3	Motorola Z Force	Motorola G5 Plus
Case File Data Protection	Modify Case Data	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
SQLite Data	Report Active Data	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Run SQLite Commands	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Table 3a: Android Devices

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017					
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Android*			
		Motorola X Pure Edition	Samsung Galaxy S9	Sony Xperia	Samsung Tab S2
Acquisition	Acquire All	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Disrupted	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Reporting	Preview-Pane	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Equipment/ User Data	IMEI	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	MEID/ESN	*NA*	*NA*	*NA*	*NA*
	MSISDN	*As Expected*	*As Expected*	*As Expected*	*As Expected*
PIM Data	Contacts	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Calendar	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Memos/ Notes	*Not As Expected*	*As Expected*	*Not As Expected*	*As Expected*
Call Logs	Incoming	*As Expected*	*As Expected*	*As Expected*	*NA*

Test Cases – Internal Memory Acquisition	MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017			
	Mobile Device Platform: Android			
	Motorola X Pure Edition	Samsung Galaxy S9	Sony Xperia	Samsung Tab S2
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*NA*
	Missed	*As Expected*	*As Expected*	*As Expected*	*NA*
SMS Messages	Incoming	*As Expected*	*As Expected*	*As Expected*	*NA*
	Outgoing	*As Expected*	*As Expected*	*As Expected*	*NA*
MMS Messages	Graphic	*As Expected*	*As Expected*	*As Expected*	*NA*
	Audio	*As Expected*	*As Expected*	*As Expected*	*NA*
	Video	*As Expected*	*As Expected*	*As Expected*	*NA*
Stand-alone Files	Graphic	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Audio	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Video	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Application Data	Documents (txt, pdf files)	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Social Media Data	Facebook	*Not As Expected*	*As Expected*	*Not As Expected*	*As Expected*
	Twitter	*Not As Expected*	*As Expected*	*Not As Expected*	*As Expected*
	LinkedIn	*Not As Expected*	*Partial*	*Not As Expected*	*As Expected*
	Instagram	*Not As Expected*	*As Expected*	*Not As Expected*	*Partial*
	Pinterest	*Not As Expected*	*As Expected*	*Not As Expected*	*NA*
	SnapChat	*Not As Expected*	*As Expected*	*Not As Expected*	*NA*
	WhatsApp	*Not As Expected*	*As Expected*	*Not As Expected*	*NA*
Internet Data	Bookmarks	*Not As Expected*	*As Expected*	*Not As Expected*	*As Expected*
	History	*Not As Expected*	*As Expected*	*Not As Expected*	*As Expected*
	Email	*Not As Expected*	*As Expected*	*Not As Expected*	*As Expected*

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017					
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Android*			
		Motorola X Pure Edition	Samsung Galaxy S9	Sony Xperia	Samsung Tab S2
GPS Data	Coordinates /Geo-tagged	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*
Non-Latin Character	Reported in native format	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Hashing	Case File/ Individual Files	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Case File Data Protection	Modify Case Data	*NA*	*NA*	*NA*	*NA*
SQLite Data	Report Active Data	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Run SQLite Commands	*NA*	*NA*	*NA*	*NA*

Table 3b: Android Devices

4.2 iOS Mobile Devices

The internal memory contents for iOS devices were acquired and analyzed with MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017.

All test cases pertaining to the acquisition of supported iOS devices were successful with the exception of the following across all iOS devices.

- Audio and Document files are not reported for the iPhone 5S.
- Social media related data (i.e., Facebook, LinkedIn) is partially reported (account, profile related information, pictures) for the iPhone 5S.
- Social media related data i.e., Facebook, Instagram is partially reported (account, profile related information) for the iPhone 6S Plus and iPhone 7.
- Social media related data (i.e., Facebook, Twitter, LinkedIn, Instagram, Snapchat) is partially reported (i.e., account, profile related information) for the iPhone 8.
- Social media related data (i.e., LinkedIn, Snapchat) is partially reported (i.e., account, profile related information) for the iPhone X.
- Social media related data (i.e., Pinterest) is not reported for the iPad Mini, iPad Air, iPhone 8 and iPhone X.

- Social media related data (i.e., Facebook, LinkedIn) is partially reported (i.e., account, profile related information) for the iPad Mini and iPad Air.
- GPS related data (i.e., longitude, latitude coordinates) is not reported for the iPhone 5S and iPhone 6S Plus.

See Table 4 below for more details.

Test Cases – Internal Memory Acquisition		Mobile Device Platform: iOS						
		iPhone 5S	iPhone 6S Plus	iPhone 7	iPhone 8	iPhone X	iPad Mini v11.3.1	iPad Air v11.2.1
Acquisition	Acquire All	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Disrupted	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Reporting	Preview-Pane	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Generated Reports	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Equipment/ User Data	IMEI	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	MEID/ESN	NA	NA	NA	NA	NA	NA	NA
	MSISDN	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
PIM Data	Contacts	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Calendar	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Memos/Notes	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Call Logs	Incoming	As Expected	As Expected	As Expected	As Expected	As Expected	NA	NA
	Outgoing	As Expected	As Expected	As Expected	As Expected	As Expected	NA	NA
	Missed	As Expected	As Expected	As Expected	As Expected	As Expected	NA	NA
SMS Messages	Incoming	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Outgoing	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
MMS Messages	Graphic	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Audio	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Video	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Stand-alone Files	Graphic	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Audio	Not As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Video	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
Application Data	Documents (txt, pdf files)	Not As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected

Table header: **MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017**

Test Cases – Internal Memory Acquisition		iPhone 5S	iPhone 6S Plus	iPhone 7	iPhone 8	iPhone X	iPad Mini v11.3.1	iPad Air v11.2.1
		Mobile Device Platform: iOS						
Social Media Data	Facebook	*Partial*	*Partial*	*Partial*	*Partial*	*As Expected*	*Partial*	*Partial*
	Twitter	*As Expected*	*As Expected*	*As Expected*	*Partial*	*As Expected*	*As Expected*	*As Expected*
	LinkedIn	*Partial*	*As Expected*	*As Expected*	*Partial*	*Partial*	*Partial*	*Partial*
	Instagram	*NA*	*Partial*	*Partial*	*Partial*	*As Expected*	*NA*	*NA*
	Pinterest	*NA*	*NA*	*NA*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*
	SnapChat	*NA*	*NA*	*NA*	*Partial*	*Partial*	*NA*	*NA*
	WhatsApp	*NA*	*NA*	*NA*	*As Expected*	*As Expected*	*NA*	*NA*
Internet Data	Bookmarks	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	History	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Email	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
GPS Data	Coordinates/ Geo-tagged	*Not As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Non-Latin Character	Reported in native format	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Hashing	Case File/ Individual Files	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Case File Data Protection	Modify Case Data	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
SQLite Data	Report Active Data	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Run SQLite Commands	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017

Table 4: iOS Devices

4.3 Universal Integrated Circuit Cards (UICCs)

The internal memory contents for Universal Integrated Circuit Cards (UICCs) were acquired and analyzed with MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017.

MD-NEXT was unable to extract data from UICCs.

See Table 5 below for more details.

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017		
Test Cases – UICC Acquisition		*Universal Integrated Circuit Card*
Connectivity	Non Disrupted	*Not As Expected*
	Disrupted	*Not As Expected*
Equipment/ User Data	Service Provider Name (SPN)	*Not As Expected*
	ICCID	*Not As Expected*
	IMSI	*Not As Expected*
	MSISDN	*Not As Expected*
PIM Data	Abbreviated Dialing Numbers (ADNs)	*Not As Expected*
	Last Numbers Dialed (LNDs)	*Not As Expected*
	SMS Messages	*Not As Expected*
	EMS Messages	*Not As Expected*
Location Related Data	LOCI	*Not As Expected*
	GPRSLOCI	*Not As Expected*
Acquisition	Acquire All	*Not As Expected*
	Selected All	*Not As Expected*
	Select Individual	*Not As Expected*
Case File Data Protection	Modify Case Data	*Not As Expected*
Password Protected SIM Acquire	Acquisition of Protected SIM	*Not As Expected*
PIN/PUK Attempts	PIN attempts reported	*Not As Expected*

MD-NEXT v1.89.18.1119, MD-RED v3.7.22.1017		
Test Cases – UICC Acquisition		*Universal Integrated Circuit Card*
	PUK attempts reported	*Not As Expected*
Non-ASCII Character	Non-ASCII characters	*Not As Expected*
Hashing	Hashes reported for acquired data objects	*Not As Expected*

Table 5: Universal Integrated Circuit Cards