Phone Forensics Express v2.1.2.2761

Test Results for Mobile Device Acquisition Tool

December 18, 2015

Homeland Security

Science and Technology

Test Results for Mobile Device Acquisition Tool:
Phone Forensics Express v2.1.2.2761

Contents

Introduction

The Computer Forensics Tool Testing (CFTT) program is a joint project of the Department of Homeland Security (DHS), 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 Phone Forensics Express v2.1.2.2761 across supported Android and iOS devices.

Test results from other tools can be found on the DHS S&T Cyber 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 and Universal Integrated Circuit Cards (UICC) data objects used to populate the mobile devices and associated media. Section 4 provides an overview of the test case results reported by the tool. The full test data is available at http://www.cftt.nist.gov/mobile_devices.htm.

Test Results for Mobile Device Acquisition Tool

Tool Tested: Phone Forensics Express
Software Version: v2.1.2.2761

Supplier: Compelson Labs

Address: 75 Broadway Suite 202 San Francisco, CA 94111

Tel: 415-361-4077
Email: feedback@mobiledit.com
WWW: http://www.mobiledit.com

1   Results Summary

Compelson Labs – Phone Forensics Express provides the ability to extract data, from a supported phone, such as: deleted data, call history, contacts, text messages, multimedia messages, files, events, notes, reminder and social media data (e.g., Skype, Facebook, Twitter, LinkedIn).

The tool was tested for its ability to acquire active data from the internal memory of supported mobile devices and UICCs. Except for the following anomalies, the tool acquired all supported data objects completely and accurately for all mobile devices tested.

***Connectivity*:**
- Connectivity was not established. (Device: *Nokia Lumia*)

***Equipment / Subscriber related data*:**
- Subscriber related data (i.e., MSISDN) was not reported. (Devices: *Android devices, iPhone 5 GSM, iPad CDMA, iPhone 5S CDMA*)
- Subscriber related data (i.e., SPN) was not reported. (Media: *UICC*)

***Personal Information Management (PIM) data*:**
- Acquisition of *Contacts* was not successful. (Device: *iPhone 5S CDMA*)
- Acquisitions of *Calendar/Events* entries were not successful. (Device: *iPhone 5S CDMA*)
- Acquisitions of *Memos* were not successful. (Devices: *Galaxy S5, Galaxy Note 3, HTC One CDMA, Nexus 4, iPhone 5S CDMS*)
- Acquisitions of *Memos* were partial. (Devices: *Galaxy S3, HTC One GSM, Galaxy S4*)

Call Logs:
- Missed calls were not acquired. (Device: *iPhone 5 GSM*)
- Outgoing calls were partially acquired. (Device: *Galaxy S4*)
- Outgoing calls were not acquired. (Device: *iPhone 5S*)

SMS messages:
- Outgoing SMS messages were not acquired. (Device: *iPhone 5s CDMA*)

MMS messages:
- MMS messages were partially acquired. (Device: *iPad GSM, iPhone 5S CDMA*)

Application Data:
- Application related data was not acquired. (Devices: *iOS devices*)

Internet Related Data:
- Browser History was not acquired. (Devices: *Galaxy S5, iPad Mini CDMA, HTC One CDMA, Nexus 4*)
- Bookmarks were partially acquired. (Device: *Nexus 4*)
- Browser History and Bookmarks were not acquired. (Devices: *Galaxy Note 3, iPhone 5s CDMA*)
- Bookmarks were not acquired. (Device: *iPad Mini GSM*)

Social Media Data:
- Acquisition of social media data (i.e., *Facebook, Twitter, LinkedIn*) was partially acquired. (Devices: *Android devices, iPhone 5 GSM, iPad CDMA, iPad Mini GSM, iPad GSM, iPhone 5S CDMA*)

Acquisition:
- Acquisition of an individual item was not successful. (Device: *iPhone 5s CDMA*)

Hashing:
- Hash values for vendor-supported data were not reported. (Devices: *Android devices, iOS devices*)
- Hash values for vendor-supported data were not reported. (Media: *UICC*)

GPS/Location Related Data:
- Acquisition of GPS related data (i.e., longitude and latitude coordinates, physical address) was not successful. (Devices: *Android devices*)
- Acquisition of LOCI and GPRLOCI were not reported. (Media: *UICC*)

For more test result details see section 4.

2 Mobile Devices

The following table lists the mobile devices used for testing Phone Forensics Express.

Make	Model	OS	Firmware	Network
Apple iPhone	5	iOS 6.1.4 (10B350)	3.04.25	GSM
Apple iPhone	5s	iOS 7.1 (11D167)	2.18.02	CDMA
Apple iPad	iPad 2 - MD065LL/A	iOS 6.1.3 (10B329)	04.12.05	GSM
Apple iPad	iPad Air - ME999LL/A	iOS 7.1 (11D167)	2.18.02	CDMA
Apple iPad Mini	iPad Mini - ME030LL/A	iOS 6.1.3 (10B329)	3.04.25	GSM
Apple iPad Mini	iPad Mini - MF075LL/A	iOS 7.0.4 (11B554a)	1.03.01	CDMA
Samsung Galaxy S3	SGH-1747	Android 4.1.2	1747UCDMG2	GSM
Samsung Galaxy S4	SGH-M919	Android 4.2.2	M919UVUAMDL	GSM
Samsung Galaxy S5	SM-G900V	Android 4.2.2	G900V.05	CDMA
HTC One	HTCC6525LVW	Android 4.2.2	0.89.20.0222	GSM
HTC One	HTC One	Android 4.1.2	4A.17.3250.20_10.40.1150.04L	CDMA
Samsung Galaxy Note 3	SM-N900V	Android 4.3	N900V.07	CDMA
Nexus 4	Nexus 4	Android 4.3	JWR66Y	GSM
Nokia	Lumia 920	Windows 8.0.10211.204	1232.5962.1314.0001	GSM

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 and UICCs.

3.1 Execution Environment

Phone Forensics Express v2.1.2.2761 was installed on Windows 7 v6.1.7601.

3.2 Internal Memory Data Objects

Phone Forensics Express was 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-ASCII Entry
PIM Data	
Datebook/Calendar	*Regular Length*
Memos	*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-ASCII SMS/EMS
MMS Messages	
	Incoming Audio
	Incoming Graphic

Data Objects	Data Elements
	Incoming Video
	Outgoing Audio
	Outgoing Graphic
	Outgoing Video
Application Data	
	Device Specific App Data
Stand-alone data files	
	Audio
	Graphic
	Video
	Audio - Deleted
	Graphic - Deleted
	Video - Deleted
Internet Data	
	Visited Sites
	Bookmarks
Location Data	
	GPS Coordinates
Social Media Data	
	Facebook
	Twitter
	LinkedIn

Table 2: Internal Memory Data Objects

3.3 UICC Data Objects

The table below (Table 3) provides an overview of the data elements populated on Universal Integrated Circuit Cards (UICCs).

Data Objects	Data Elements
Abbreviated Dialing Numbers (ADN)	
	Maximum Length
	Special Character
	Blank Name
	Non-ASCII Entry
	Regular Length - Deleted Number
Call Logs	
	Last Numbers Dialed (LND)
Text Messages	
	Incoming SMS - Read
	Incoming SMS - Unread
	Non-ASCII SMS
	Incoming SMS - Deleted
	Non-ASCII EMS
	Incoming EMS - Deleted

Table 3: UICC 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 (e.g., Android, iOS) and the make and model of mobile devices used for testing Phone Forensics Express v2.1.2.2761. Section 4.4 covers Universal Integrated Circuit Cards (UICCs).

The *Test Cases* column (internal memory acquisition/UICC) in sections 4.1 - 4.4 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 Phone Forensics Express v2.1.2.2761.

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

- Subscriber related data (i.e., MSISDN) were not reported for the Galaxy S3, Galaxy S4, Galaxy S5, Galaxy Note 3, HTC One GSM, HTC One CDMA and Nexus 4.
- Acquisition of PIM Data (i.e. *memos*) was not successful for the Galaxy S5, Galaxy Note 3, HTC One CDMA and Nexus 4.
- Acquisition of PIM Data (i.e. *long memos*) was partial for the Galaxy S3, Galaxy S4 and HTC One GSM.
- Call log (e.g., outgoing calls) was partially acquired. Call logs only reported the last call placed for the Galaxy S4.
- Internet Related Data (i.e., Browser history) was not acquired for the Galaxy S5, HTC One CDMA and Nexus 4.
- Internet Related Data (i.e., Bookmarks) was partially acquired for the Nexus 4.
- Internet Related Data (i.e., Browser history and bookmarks for visited Internet URLs) was not reported for the Galaxy Note 3 CDMA.
- Social media data was partially acquired; only the path to the installation package (i.e., Facebook) was recovered for the Galaxy S5.
- Social media data was partially acquired; only the path to the installation package (i.e., Twitter) was recovered for the Galaxy Note 3.
- Social media data was partially acquired; only the path to the installation package (i.e., LinkedIn, Twitter, Facebook) was recovered for the Galaxy S3, HTC One GSM, and HTC One CDMA.
- Social media data was partially acquired; only the path to the installation package (i.e., Facebook, LinkedIn) was recovered for the Galaxy S4 and Nexus 4.
- Hash values for vendor-supported data were not reported for the Galaxy S3, Galaxy S4, Galaxy S5, Galaxy Note 3, HTC One GSN, HTC One CDMA and Nexus 4.
- GPS related data was not acquired for all Android devices.

NOTES:
- ➢ The tool creates a report but does not include all data recovered (e.g., Memos – these may be recovered as graphic files, in certain cases, but are not included in the report. They can be found within the file system folders. The tool does not provide a preview pane.
- ➢ Deleted data (i.e., *SMS/EMS*) was recovered for the HTC One CDMA and Galaxy S3.
- ➢ Short memo was acquired and presented as a graphic file for the Galaxy S3 and HTC One GSM.

> ➢ Long memo was partially acquired and presented as a graphic file for the Galaxy S3, Galaxy S4 and HTC One GSM.

See Table 4 below for more details.

Phone Forensics Express v2.1.2.2761								
Test Cases – Internal Memory Acquisition		*Mobile Devices Platform: Android*						
		Galaxy S3 *GSM*	Galaxy S4 *GSM*	Galaxy S5 *CDMA*	Galaxy Note 3 *CDMA*	HTC One *GSM*	HTC One *CDMA*	Nexus 4 *GSM*
Connectivity	Non Disrupted	*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	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Equipment/ User Data	IMEI	*As Expected*	*As Expected*	*NA*	*NA*	*As Expected*	*NA*	*As Expected*
	MEID/ESN	*NA*	*NA*	*As Expected*	*As Expected*	*NA*	*NA*	*NA*
	MSISDN	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not 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*
	To-Do List/ Tasks	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Memos	*Partial*	*Partial*	*Not As Expected*	*Not As Expected*	*Partial*	*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*	*Partial*	*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*
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*

Phone Forensics Express v2.1.2.2761							
Test Cases – Internal Memory Acquisition		Mobile Devices Platform: Android						
		Galaxy S3 GSM	Galaxy S4 GSM	Galaxy S5 CDMA	Galaxy Note 3 CDMA	HTC One GSM	HTC One CDMA	Nexus 4 GSM
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	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected
	Spreadsheets	NA	NA	NA	NA	NA	NA	NA
	Presentations	NA	NA	NA	NA	NA	NA	NA
Internet Data	Bookmarks	As Expected	As Expected	As Expected	Not As Expected	As Expected	As Expected	Partial
	History	As Expected	As Expected	Not As Expected	Not As Expected	As Expected	Not As Expected	Not As Expected
Social Media Data	Facebook	Partial	Partial	Partial	As Expected	Partial	Partial	Partial
	Twitter	Partial	As Expected	As Expected	Partial	Partial	Partial	As Expected
	LinkedIn	Partial	Partial	As Expected	As Expected	Partial	Partial	Partial
Acquisition	Acquire All	NA	NA	NA	NA	NA	NA	NA
	Selected All	NA	NA	NA	NA	NA	NA	NA
	Select Individual	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
Physical Acquisition	Readability	NA	NA	NA	NA	NA	NA	NA
	Deleted File Recovery	NA	NA	NA	NA	NA	NA	NA
Non-ASCII Character	Reported in native format	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected	As Expected

Phone Forensics Express v2.1.2.2761								
Test Cases – Internal Memory Acquisition		*Mobile Devices Platform: Android*						
		Galaxy S3 *GSM*	Galaxy S4 *GSM*	Galaxy S5 *CDMA*	Galaxy Note 3 *CDMA*	HTC One *GSM*	HTC One *CDMA*	Nexus 4 *GSM*
Hashing	Hashes reported for acquired data objects	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*
GPS Data	Coordinates (Long/Lat)	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*

Table 4: Android Mobile Devices

4.2 iOS Mobile Devices

The internal memory contents for iOS devices were acquired and analyzed with Phone Forensics v2.1.2.2761.

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

- Subscriber related data (i.e., MSISDN) was not recovered for the iPhone 5 GSM, iPhone 5s and iPad CDMA.
- PIM Data (i.e., Contacts, Calendar/Events entries, Memos) was not acquired for the iPhone 5s CDMA.
- Missed calls were not acquired for the iPhone 5 GSM.
- Outgoing calls were not acquired for the iPhone 5s CDMA.
- Outgoing SMS were not acquired for the iPhone 5s CDMA.
- MMS messages were partially acquired; only the text portion of the message was acquired and categorized under MMS messages for the iPad GSM.
- MMS messages were partially acquired; only the attachment portion of the message was acquired and categorized under media for the iPhone 5s.
- Application related data (e.g., pdf documents) was not acquired for the iPhone 5 GSM, iPhone 5s CDMA, iPad GSM, iPad CDMA, iPad Mini GSM and iPad Mini CDMA.
- Internet Related Data (i.e., Browser history) was not acquired for the iPad Mini CDMA.
- Internet Related Data (i.e., Bookmarks) was not acquired for the iPad Mini GSM.
- Internet Related Data (i.e., Browser History and Bookmarks) was not acquired for the iPhone 5s CDMA.
- Social media data was partially acquired; only the path to the application installation package (i.e., Facebook) was acquired for the iPhone 5 GSM and iPad CDMA.

- Social media data was partially acquired; only the paths to the installation packages (i.e., LinkedIn, Twitter, Facebook) were acquired for the iPad Mini GSM and iPhone 5s CDMA.
- Social media data was partially acquired; only the paths to the installation packages (i.e., LinkedIn, Facebook) were acquired for the iPad GSM.
- Acquisition of a supported selected individual item (i.e., Phonebook only) was not successful for the iPhone 5s CDMA.
- Hash values for vendor-supported data were not reported for the iPhone iPhone 5 GSM, iPad GSM, iPad CDMA, iPad Mini GSM and iPad Mini CDMA

NOTES:
- The tool creates a report but does not include all data recovered (e.g., GPS data was recovered but not included in the report). It can be found within the file system folders. The tool does not provide a preview pane.
- The text portion of the MMS messages was not reported with associated attachments (i.e., graphic, audio, video files). For instance, the graphic file embedded in the message was found under "media" instead of being under the MMS category. Whereas the text portion was found under SMS.
- Deleted data (i.e., *memos and SMS/EMS*) was recovered for the iPhone 5 GSM, iPad CDMA, iPad Mini GSM and iPad Mini CDMA.

See Table 5 below for more details.

Phone Forensics Express v2.1.2.2761						
Test Cases – Internal Memory Acquisition		*Mobile Devices Platform: iOS*				
		iPhone 5 GSM	iPhone 5s CDMA	iPad GSM	iPad Air CDMA	iPad Mini GSM	iPad Mini CDMA
Connectivity	Non Disrupted	*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*
Reporting	Preview-Pane	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Generated Reports	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Equipment/ User Data	IMEI	*As Expected*	*As Expected*	*As Expected*	*NA*	*As Expected*	*As Expected*
	MEID/ESN	*NA*	*NA*	*NA*	*As Expected*	*NA*	*NA*
	MSISDN	*Not As Expected*	*Not As Expected*	*NA*	*Not As Expected*	*NA*	*NA*

Phone Forensics Express v2.1.2.2761						
Test Cases – Internal Memory Acquisition		*Mobile Devices Platform: iOS*				
		iPhone 5 *GSM*	iPhone 5s *CDMA*	iPad *GSM*	iPad Air *CDMA*	iPad Mini *GSM*	iPad Mini *CDMA*
PIM Data	Contacts	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Calendar	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	To-Do List/ Tasks	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Memos	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Call Logs	Incoming	*As Expected*	*NA*	*NA*	*NA*	*NA*	*NA*
	Outgoing	*As Expected*	*Not As Expected*	*NA*	*NA*	*NA*	*NA*
	Missed	*Not As Expected*	*NA*	*NA*	*NA*	*NA*	*NA*
SMS Messages	Incoming	*As Expected*	*NA*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
	Outgoing	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
MMS Messages	Graphic	*As Expected*	*Partial*	*Partial*	*As Expected*	*As Expected*	*As Expected*
	Audio	*As Expected*	*Partial*	*Partial*	*As Expected*	*As Expected*	*As Expected*
	Video	*As Expected*	*Partial*	*Partial*	*As Expected*	*As Expected*	*As Expected*
Stand-alone Files	Graphic	*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*
	Video	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Application Data	Documents	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*
	Spreadsheets	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Presentations	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Internet Data	Bookmarks	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*Not As Expected*	*As Expected*
	History	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*Not As Expected*
Social Media Data	Facebook	*Partial*	*Partial*	*Partial*	*Partial*	*Partial*	*As Expected*
	Twitter	*As Expected*	*Partial*	*As Expected*	*As Expected*	*Partial*	*As Expected*

Phone Forensics Express v2.1.2.2761						
Test Cases – Internal Memory Acquisition		*Mobile Devices Platform: iOS*				
		iPhone 5 *GSM*	iPhone 5s *CDMA*	iPad *GSM*	iPad Air *CDMA*	iPad Mini *GSM*	iPad Mini *CDMA*
	LinkedIn	*As Expected*	*Partial*	*Partial*	*As Expected*	*Partial*	*As Expected*
Acquisition	Acquire All	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Selected All	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Select Individual	*As Expected*	*Not As Expected*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Case File Data Protection	Modify Case Data	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Physical Acquisition	Readability	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
	Deleted File Recovery	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Non-ASCII Character	Reported in native format	*As Expected*	*NA*	*As Expected*	*As Expected*	*As Expected*	*As Expected*
Hashing	Hashes reported for acquired data objects	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*	*Not As Expected*
GPS Data	Coordinates (Long/Lat)	*As Expected*	*NA*	*As Expected*	*As Expected*	*As Expected*	*As Expected*

Table 5: iOS Mobile Devices

4.3 Windows Based Devices

The internal memory contents for Windows 8.0 devices were acquired and analyzed with Phone Forensics Express v2.1.2.2761.

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

- ▪ Connectivity was not established for the Nokia Lumia.

NOTES:
- ➢ The Nokia Lumia 920 is listed as a supported phone but the tool was not able to connect to the device.

See Table 6 below for more details.

Phone Forensics Express v2.1.2.2761		
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Windows 8*
		Nokia Lumia 920
Connectivity	Non Disrupted	*Not As Expected*
	Disrupted	*NA*
Reporting	Preview-Pane	*NA*
	Generated Reports	*NA*
Equipment/ User Data	IMEI	*NA*
	MEID/ESN	*NA*
	MSISDN	*NA*
PIM Data	Contacts	*NA*
	Calendar	*NA*
	To-Do List/ Tasks	*NA*
	Memos	*NA*
Call Logs	Incoming	*NA*
	Outgoing	*NA*
	Missed	*NA*
SMS Messages	Incoming	*NA*
	Outgoing	*NA*
MMS Messages	Graphic	*NA*
	Audio	*NA*
	Video	*NA*
Stand-alone Files	Graphic	*NA*
	Audio	*NA*
	Video	*NA*
Application Data	Documents	*NA*
	Spreadsheets	*NA*
	Presentations	*NA*

Phone Forensics Express v2.1.2.2761		
Test Cases – Internal Memory Acquisition		*Mobile Device Platform: Windows 8*
		Nokia Lumia 920
Internet Data	Bookmarks	*NA*
	History	*NA*
Social Media Data	Facebook	*NA*
	Twitter	*NA*
	LinkedIn	*NA*
Acquisition	Acquire All	*NA*
	Selected All	*NA*
	Select Individual	*NA*
Case File Data Protection	Modify Case Data	*NA*
Physical Acquisition	Readability	*NA*
	Deleted File Recovery	*NA*
Non-ASCII Character	Reported in native format	*NA*
Hashing	Hashes reported for acquired data objects	*NA*
GPS Data	Coordinates (Long/Lat)	*NA*

Table 6: Windows 8.0 Devices

4.4 Universal Integrated Circuit Cards (UICCs)

The internal memory contents for Universal Integrated Circuit Cards (UICCs) were acquired and analyzed with Phone Forensics Express v2.1.2.2761.

All test cases pertaining to the acquisition of UICCs were successful with the exception of the following:

- ▪ Acquisition of the SPN was not reported.

- Acquisition of the MSISDN was not reported.
- Acquisition of location related data (i.e., LOCI, GPRSLOCI) was not reported.
- Hash values were not present for vendor-supported data.

See Table 7 below for more details.

Phone Forensics Express v2.1.2.2761		
Test Cases – UICC Acquisition		*Universal Integrated Circuit Card*
Connectivity	Non Disrupted	*As Expected*
	Disrupted	*As Expected*
Equipment/ User Data	Service Provider Name (SPN)	*Not As Expected*
	ICCID	*As Expected*
	IMSI	*As Expected*
	MSISDN	*Not As Expected*
PIM Data	Abbreviated Dialing Numbers (ADNs)	*As Expected*
	Last Numbers Dialed (LNDs)	*As Expected*
	SMS Messages	*As Expected*
	EMS Messages	*As Expected*
Location Related Data	LOCI	*Not As Expected*
	GPRSLOCI	*Not As Expected*
Acquisition	Acquire All	*NA*
	Selected All	*NA*
	Select Individual	*As Expected*
Case File Data Protection	Modify Case Data	*NA*
Password Protected SIM Acquire	Acquisition of Protected SIM	*As Expected*
PIN/PUK Attempts	PIN attempts reported	*As Expected*
	PUK attempts reported	*As Expected*
Non-ASCII Character	Non-ASCII characters	*As Expected*

Phone Forensics Express v2.1.2.2761		
Test Cases – UICC Acquisition		*Universal Integrated Circuit Card*
Hashing	Hashes reported for acquired data objects	*Not As Expected*

Table 7: Universal Integrated Circuit Cards