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Test Results for Digital Data Acquisition Tool:
SubRosaSoft MacForensicsLab 2.5.5

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NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

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Introduction

The Computer Forensics Tool Testing (CFTT) program is a joint project of the National Institute of Justice (NIJ), the research and development organization of the U.S. Department of Justice, and the National Institute of Standards and Technology's (NIST's) Office of Law Enforcement Standards and Information Technology Laboratory. 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 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, for users to make informed choices and for the legal community and others to understand the tools' capabilities. The CFTT approach to testing computer forensic tools is based on well-recognized methodologies for conformance and quality testing. The specifications and test methods are posted on the CFTT Web site (http://www.cftt.nist.gov/) for review and comment by the computer forensics community.

This document reports the results from testing SubRosaSoft MacForensicsLab 2.5.5 against the *Digital Data Acquisition Tool Assertions and Test Plan Version 1.0*, which is available at the CFTT Web site (http://www.cftt.nist.gov/DA-ATP-pc-01.pdf).

Test results from other tools and the CFTT tool methodology can be found on NIJ's computer forensics tool testing Web
page, http://www.ojp.usdoj.gov/nij/topics/technology/electronic-crime/cftt.htm.

How to Read This Report

This report is divided into five sections. Section 1 is a summary of the results from the test runs. This section is sufficient for most readers to assess the suitability of the tool for the intended use. The remaining sections of the report describe how the tests were conducted, discuss any anomalies that were encountered and provide documentation of test case run details that support the report summary. Section 2 gives justification for the selection of test cases from the set of possible cases defined in the test plan for Digital Data Acquisition tools. The test cases are selected based on features offered by the tool. Section 3 describes in more depth any anomalies summarized in the first section. Section 4 lists hardware and software used to run the test cases with links to additional information about the items used. Section 5 contains a description of each test case run. The description of each test run lists all test assertions used in the test case, the expected result and the actual result.

Test Results for Digital Data Acquisition Tool

Tool Tested: SubRosaSoft MacForensicsLab
Version: 2.5.5
Run Environments: OS 10.5.6, OS 10.5.5, OS 10.4.11

Supplier: SubRosaSoft.com Inc.

Address: 37600 Central Ct, Suite 212
                    Newark, CA 94560

Tel: 510–870–7883
Fax: 510–868–3407
WWW: http://www.macforensicslab.com/

1 Results Summary

The tool acquired source drives completely and accurately except for in the cases where source drives containing faulty sectors were imaged or where a source drive containing a Host Protected Area (HPA) was imaged through a vendor-recommend write blocker. The following anomalies were observed:

- Ranges for acquisition hashes are recorded incorrectly in the tool-generated HTML report for media and volumes larger than 2 GB.
- Ranges for block hashes are recorded incorrectly in the tool-generated HTML report for ranges that cover portions of source media beyond 2 GB (DA–06–SATA48, DA–06–USB, DA–07–EXT2, DA–07–OSXJ, DA–08–DCO).
- The sectors hidden by a Device Configuration Overlay (DCO) or HPA are not acquired (DA–08–DCO, DA–08–SATA28, DA–08–SATA28–ALT, and DA–08–SATA48).
- Visible sectors (sectors not hidden by an HPA) may not be acquired when a drive containing an HPA is imaged through a vendor-recommend write blocker (DA–08–SATA28).
- The tool is inconsistent in notifying the user of read errors. After acquisitions of drives with faulty sectors are complete no tool notification or record is immediately available to alert the user that read errors occurred (DA–09–ALT, DA–09–INTEL, and DA–09–PPC).
- Good sectors that follow faulty sectors are not acquired, and other data is written in the place of these sectors (DA–09–ALT, DA–09–INTEL, and DA–09–PPC).
- Data for faulty sectors is replaced in image files with data from an undetermined source (DA–09–ALT, DA–09–INTEL, and DA–09–PPC).

2 Test Case Selection

Test cases used to test disk imaging tools are defined in *Digital Data Acquisition Tool Assertions and Test Plan Version 1.0*. To test a tool, test cases are selected from the *Test Plan* document based on the features offered by the tool. Not all test cases or test

assertions are appropriate for all tools. There is a core set of base cases (DA–06, DA–07 and DA–08) that are executed for every tool tested. Tool features guide the selection of additional test cases. If a given tool implements a given feature then the test cases linked to that feature are run. Table 1 lists the features available in MacForensicsLab and the linked test cases selected for execution. Table 2 lists the features not available in MacForensicsLab and the test cases that were not executed.

Table 1 Selected Test Cases

Supported Optional Feature	Cases Selected for Execution
Base Cases	06, 07 and 08
Read error during acquisition	09
Insufficient space for image file	12

Table 2 Omitted Test Cases

Unsupported Optional Feature	Cases Omitted (Not Executed)
Create a clone during acquisition	01
Create an unaligned clone from a digital source	02
Create a truncated clone from a physical device	04
Create cylinder aligned clones	03, 15, 21 and 23
Convert an image file from one format to another	26
Destination Device Switching	13
Device I/O error generator available	05, 11 and 18
Fill excess sectors on a clone device	20, 21, 22 and 23
Create a clone from an image file	14 and 17
Create a clone from a subset of an image file	16
Fill excess sectors on a clone acquisition	19
Detect a corrupted (or changed) image file	24 and 25

Some test cases have variant forms to accommodate parameters within test assertions. These variations cover the acquisition interface to the source drive, the type of digital object acquired, the execution environment, and the way that sectors are hidden on a drive. Additional parameters that were varied between test cases and test case variations were block hash window size (referred to as Packet Size in MacForensicsLab documentation), type(s) of hash algorithm calculated, image file segment size, the use of a hardware write blocker, and the type of hardware write blocker used.

The following source access interfaces were tested: SATA28, SATA48, FW and USB. These are noted as variations on test cases DA–06 and DA–08.

The following digital sources were tested: partitions (EXT2, Linux swap, FAT12, FAT16, FAT32, FAT32X, NTFS, OSX or HFS, OSXC or HFS+ case sensitive, OSXCJ or HFS+ case sensitive journaled, OSXJ or HFS+ journaled and OSXU or UFS), compact flash

(CF) and thumb drive (Thumb). There are two FAT 32 variations testing acquisition of both FAT 32 partition codes 0x0B (FAT32) and 0x0C (FAT32X). These digital source types are noted as variations on test case DA–07.

Hardware write blockers were used in certain variations of the DA–07, DA–08, and DA–09 test cases and were varied by manufacturer and model.

The following execution environments were used in testing: PowerPC with Mac OS 10.4.11, Intel with Mac OS 10.5.5 and Intel with Mac OS 10.5.6. See section 4 for a more complete description of the machines used in testing.

3   Results by Test Assertion

A test assertion is a verifiable statement about a single condition after an action is performed by the tool under test. A test case usually checks a group of assertions after the action of a single execution of the tool under test. Test assertions are defined and linked to test cases in *Digital Data Acquisition Tool Assertions and Test Plan Version 1.0*. Table 3 summarizes the test results for all the test cases by assertion. The column labeled **Assertions Tested** gives the text of each assertion. The column labeled **Tests** gives the number of test cases that use the given assertion. The column labeled **Anomaly** gives the section number in this report where any observed anomalies are discussed.

See section 2 for a discussion of source access interface, execution environment and digital source.

Table 3 Assertions Tested

Assertions Tested	Tests	Anomaly
AM–01 The tool uses access interface SRC-AI to access the digital source.	26	
AM–02 The tool acquires digital source DS.	26	
AM–03 The tool executes in execution environment XE.	26	
AM–05 If image file creation is specified, the tool creates an image file on file system type FS.	26	
AM–06 All visible sectors are acquired from the digital source.	25	3.3
AM–07 All hidden sectors are acquired from the digital source.	4	3.2
AM–08 All sectors acquired from the digital source are acquired accurately.	25	3.4
AM–09 If unresolved errors occur while reading from the selected digital source, the tool notifies the user of the error type and location within the digital source.	3	3.5
AM–10 If unresolved errors occur while reading from the selected digital source, the tool uses a benign fill in the destination object in place of the inaccessible data.	3	3.4
AO–01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool.	25	
AO–04 If the tool is creating an image file and there is insufficient space on the image destination device to contain the image file, the tool shall notify the user.	1	
AO–05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size.	25	
AO–22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source.	6	3.1
AO–23 If the tool logs any log significant information, the information is accurately	26	

Assertions Tested	Tests	Anomaly
recorded in the log file.		
AO–24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.	4	

Two test assertions only apply in special circumstances. The assertion AO–22 is checked only for tools that create block hashes. For MacForensicsLab block hash computation was only tested in six test cases. The assertion AO–24 is only checked if the tool is executed in a run time environment that does not modify attached storage devices, such as MS DOS. In normal operation, an imaging tool is used in conjunction with a write block device to protect the source drive; however, a blocker was not used for four tests so that assertion AO–24 could be checked. Table 4 lists the assertions that were not tested, usually due to the tool not supporting some optional feature (e.g., creation of cylinder aligned clones).

Table 4 Assertions Not Tested

Assertions Not Tested
AM–04 If clone creation is specified, the tool creates a clone of the digital source.
AO–02 If an image file format is specified, the tool creates an image file in the specified format.
AO–03 If there is an error while writing the image file, the tool notifies the user.
AO–06 If the tool performs an image file integrity check on an image file that has not been changed since the file was created, the tool shall notify the user that the image file has not been changed.
AO–07 If the tool performs an image file integrity check on an image file that has been changed since the file was created, the tool shall notify the user that the image file has been changed.
AO–08 If the tool performs an image file integrity check on an image file that has been changed since the file was created, the tool shall notify the user of the affected locations.
AO–09 If the tool converts a source image file from one format to a target image file in another format, the acquired data represented in the target image file is the same as the acquired data in the source image file.
AO–10 If there is insufficient space to contain all files of a multi-file image and if destination device switching is supported, the image is continued on another device.
AO–11 If requested, a clone is created during an acquisition of a digital source.
AO–12 If requested, a clone is created from an image file.
AO–13 A clone is created using access interface DST-AI to write to the clone device.
AO–14 If an unaligned clone is created, each sector written to the clone is accurately written to the same disk address on the clone that the sector occupied on the digital source.
AO–15 If an aligned clone is created, each sector within a contiguous span of sectors from the source is accurately written to the same disk address on the clone device relative to the start of the span as the sector occupied on the original digital source. A span of sectors is defined to be either a mountable partition or a contiguous sequence of sectors not part of a mountable partition. Extended partitions, which may contain both mountable partitions and unallocated sectors, are not mountable partitions.
AO–16 If a subset of an image or acquisition is specified, all of the subset is cloned.
AO–17 If requested, any excess sectors on a clone destination device are not modified.
AO–18 If requested, a benign fill is written to excess sectors of a clone.
AO–19 If there is insufficient space to create a complete clone, a truncated clone is created using all available sectors of the clone device.
AO–20 If a truncated clone is created, the tool notifies the user.
AO–21 If there is a write error during clone creation, the tool notifies the user.

3.1 Block Hash and Acquisition Hash Ranges

With the MacForensicsLab tool the block and acquisition hash data for a given acquisition can be viewed in three places: (1) in the tool itself, (2) in a tool-generated HTML report, or (3) in an acquisition log file. For test case variations DA–06–SATA48, DA–06–USB, DA–07–EXT2, DA–07–OSXJ, and DA–08–DCO the ranges for block hashes that cover portions of the media beyond 2 GB were logged incorrectly in the tool-generated HTML reports. For example, in test case variation DA–06–SATA48, all block hashes whose start byte address was greater than 2,147,483,648, had the value 2,147,483,648 logged in the tool-generated HTML report in place of the correct start byte address. Ranges were logged correctly when viewed within the tool or acquisition log file.

Additionally, for test case variations where the media or volume acquired was larger than 2 GB, the tool-generated HTML reports incorrectly logged the range over which the acquisition hashes were computed. As an example, for DA–06–FW, where a 60,060,155,904 byte drive was acquired, the acquisition hash was incorrectly logged as being calculated over a range of bytes beginning at byte 0 and having a total length of 2,147,483,648 bytes. When viewed within the tool or acquisition log file, the range of bytes was correctly logged as beginning at byte 0 and having a total length of 60,060,155,904 bytes.

3.2 Acquisition of Host Protected Areas and Device Configuration Overlays

The tool does not remove HPAs or DCOs. The tool did not acquire sectors hidden by an HPA, DCO, or combination thereof in test case DA–08 variations DA–08–DCO, DA–08–SATA28, DA–08–SATA28–ALT, and DA–08–SATA48.

3.3 Acquisition of HPA using Diskology Disk Jockey PRO Forensic Blocker

In test case variation DA–08–SATA28, where a drive containing an HPA was imaged through a vendor-recommended hardware write block device, assertion AM–06 was not met and some visible sectors were not acquired. In this variation, the test drive contained 140000001 visible sectors. The test drive contained 16301487 sectors hidden inside an HPA. The test drive was being acquired via a Disk Jockey PRO Forensic Edition Version 1.20 write blocker. Both the 897 visible sectors preceding the Host Protected Area and the 16301487 sectors hidden within it were not acquired.

3.4 Acquisition of Faulty Sectors

To determine tool behavior on acquisitions of drives with faulty sectors, the image files were restored to clones using **dd** and the clones were compared to a drive that was identical to the source drive, but lacked any faulty sectors.

For all variations of test case DA–09 (DA–09–ALT, DA–09–INTEL and DA–09–PPC) there were blocks of sectors immediately following faulty sectors that were not acquired. Other data was written to image files in place of these blocks of sectors. MacForensicsLab allows specification of a packet size which refers to the size of the

range over which block hashes will be computed for a particular acquisition. For each variation, each block of sectors that was not acquired was smaller than the packet size used (4MB for DA–09–ALT and DA–09–INTEL; 256KB for DA–09–PPC). In place of the original sector contents, data from earlier and later parts of the source drive, sometimes followed by a run of zeros, was written to the image file. This data was written in place of the block of sectors not acquired, which included readable sectors and, in some cases, faulty sectors.

In place of faulty sectors that were not located inside one of the previously described blocks of sectors not acquired, data from an undetermined source was written to the image file.

3.5 User Notification of Errors

Drives with faulty sectors are acquired in test case DA–09. In each variation of test case DA–09 (DA–09–ALT, DA–09–INTEL and DA–09–PPC) the tool was inconsistent in notifying the user of read errors. During acquires it displayed a tally of read errors, but after the acquisition completed, the number of errors was no longer displayed and there was no tool notification or record immediately available to alert the user of any read errors encountered. The user can reliably determine if read errors were encountered during an acquisition by examining the tool's Database window for the presence of values below the acquisition hash or by examining the tool-generated log file generated for that acquisition.

4 Testing Environment

The tests were run in the NIST CFTT lab. This section describes the test computers available for testing, using the support software, and notes on other test hardware.

4.1 Test Computers

Three test computers were used.

D'Artagnan has the following configuration:

Mac Pro with Mac OS 10.5.6
Boot ROM Version: MP11.005C.B08
2 Dual-Core Intel Xeon 2.66 GHz CPUs 4MB L2 cache per CPU
4x2GB 667MHz DDR2 DIMMs
2x512MB 667MHz DDR2 DIMMs
Sony ATAPI DW-D150A DVD-RW drive
ST3250824AS P, 250 GB SATA disk drive
1.33 GHz bus
1 pair Fibre Channel ports
5 USB 2.0 ports
2 IEEE 1394 ports
2 IEEE 1394b port

Manuelito has the following configuration:

Mac mini with Mac OS 10.5.5
Boot ROM Version: MM21.009A.B00
1 Intel Core 2 Duo 2 GHz CPU 4MB L2 cache
2x1GB 667MHz DDR2 SDRAM DIMMs
Pioneer ATAPI DVR-K06 DVD-RW drive
Hitachi HTS542512K9SA00, 120 GB SATA disk drive
667 MHz bus
4 USB 2.0 ports
1 IEEE 1394 ports

Richelieu has the following configuration:

Power Mac G5 with Mac OS 10.4.11
Boot ROM Version: 5.2.4f1
2 PowerPC G5 (3.0) 2.3GHz CPUs 512MB L2 cache per CPU
2x512MB PC3200U-30330 DDR SDRAM DIMMs
Pioneer ATAPI DVR-109 DVD-RW drive
WDC WD2500JD-41HBC0, 250 GB SATA disk drive
1.15GHz bus
1 pair Fibre Channel ports
3 USB 2.0 ports
2 IEEE 1394 ports
1 IEEE 1394b port

4.2 Support Software

A package of programs to support test analysis, FS–TST Release 2.0, was used. The software can be obtained from: http://www.cftt.nist.gov/diskimaging/fs-tst20.zip.

4.3 Test Drive Creation

There are three ways that a hard drive may be used in a tool test case: as a source drive that is imaged by the tool, as a media drive that contains image files created by the tool under test or as a destination drive on which the tool under test creates a clone of the source drive. In addition to the operating system drive formatting tools, some tools (diskwipe and diskhash) from the FS–TST package are used to set up test drives.

To set up a media drive, the drive is formatted with one of the supported file systems. A media drive may be used in several test cases.

The setup of most source drives follows the same general procedure, but there are several steps that may vary depending on the needs of the test case.

1. The drive is filled with known data by the **diskwipe** program from FS–TST. The **diskwipe** program writes the sector address to each sector in both C/H/S and LBA

format. The remainder of the sector bytes is set to a constant fill value unique for each drive. The fill value is noted in the **diskwipe** tool log file.

2. The drive may be formatted with partitions as required for the test case.
3. An operating system may optionally be installed.
4. A set of reference hashes is created by the FS–TST **diskhash** tool. These include both SHA1 and MD5 hashes. In addition to full drive hashes, hashes of each partition may also be computed.
5. If the drive is intended for hidden area tests (DA–08), an HPA, a DCO or both may be created. The **diskhash** tool is then used to calculate reference hashes of just the visible sectors of the drive.

The source drives for DA–09 are created such that there is a consistent set of faulty sectors on the drive. Each of these source drives is initialized with **diskwipe** and then their faulty sectors are activated. For each of these source drives, a second drive of the same size with the same content as the faulty sector drive (but with no faulty sectors) serves as a reference drive for images made from the faulty drive.

To setup a destination drive, the drive is filled with known data by the **diskwipe** program from FS–TST. Partitions may be created if the test case involves restoring from the image of a logical acquire.

4.4 Test Drive Analysis

For test cases (DA–01, DA–09, and DA–19) that create a cloned version of a source drive on a destination drive, the source is compared using the FS–TST programs **diskcmp** (for an entire drive) and **partcmp** (for a single partition) to the destination and any differences are noted. For test case DA–09, using a source drive with known bad sectors, the program **anabad** is used to compare the bad sector reference drive to a cloned version of the bad sector drive.

For test cases such as DA–06 and DA–07, the acquisition hash is compared to the reference hash of the source to check that the source is completely and accurately acquired.

4.5 Note on Test Drives

The testing uses several test drives from a variety of vendors. The drives are identified by an external label that consists of a two digit hexadecimal value and an optional tag, e.g., 25–SATA. The combination of hex value and tag serves as a unique identifier for each drive. The two digit hex value is used by the FS–TST **diskwipe** program as a sector fill value. The FS–TST compare tools, **diskcmp** and **partcmp,** count sectors that are filled with the source and destination fill values on a destination that is larger than the original source.

Table 5 lists the test drives used. The models and serial numbers are listed as returned by the ATA IDENTIFY DEVICE command.

Table 5 Test Drives

Drive	Model	Serial #	Size (Sectors)
01–ide	WDC WD400BB-00JHC0	WD–WMAMC7417100	78165360
01–sata	0JD–32HKA0	WD–WMAJ91448529	156301488
0b–sata	00JD–22FYB0	WD–WMAEH2677545	488397168
15–sata	0JD–00HKA0	WD–WMAJ91513490	156301488
1e–sata	ST3320620AS	5QF3X4F6	625142448
23–sata	ST380013AS	5JVCYJCF	156301488
43	0BB–75JHC0	WD–WMAMC46588	78125000
4b–sata	ST380815AS	6QZ5C9V5	156301488
63–fu2	SP0612N	n/a	117304992
c1–cf	CF	n/a	503808
d5–thumb	Usb2.0Flash Disk	n/a	505856
ed–bad–cpr4	6Y060M0	Y23EGSJE	120103200

5 Test Results

The main item of interest for interpreting the test results is determining the conformance of the device with the test assertions. Conformance with each assertion tested by a given test case is evaluated by examining the **Log File Highlights** box of the test report summary.

5.1 Test Results Report Key

A summary of the actual test results is presented in this report. The following table presents a description of each section of the test report summary. The Tester Name, Test Host, Test Date, Drives, Source Setup and Log Highlights sections for each test case are populated by excerpts taken from the log files produced by the tool under test and the FS–TST tools that were executed in support of test case setup and analysis.

Heading	Description
First Line:	Test case ID, name, and version of tool tested.
Case Summary:	Test case summary from *Digital Data Acquisition Tool Assertions and Test Plan Version 1.0.*
Assertions:	The test assertions applicable to the test case, selected from *Digital Data Acquisition Tool Assertions and Test Plan Version 1.0.*
Tester Name:	Name or initials of person executing test procedure.
Test Host:	Host computer executing the test.
Test Date:	Time and date that test was started.
Drives:	Source drive (the drive acquired), destination drive (if a clone is created) and media drive (to contain a created image).
Source Setup:	Layout of partitions on the source drive and the expected hash of the drive.

Heading	Description
Log Highlights:	Information extracted from various log files to illustrate conformance or non-conformance to the test assertions.
Results:	Expected and actual results for each assertion tested.
Analysis:	Whether or not the expected results were achieved.

5.2 Test Details

5.2.1 DA–06–FW

Test Case DA-06-FW MacForensicsLab 2.5.5	
Case Summary:	DA-06 Acquire a physical device using access interface AI to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Thu Mar 5 02:33:57 2009
Drives:	src(63-fu2) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA256): < EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D > src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B > src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC > 117304992 total sectors (60060155904 bytes) Model (SP0612N) serial # () N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16 2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended 3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32 4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 004192902 sectors 2146765824 bytes 3 113097537 sectors 57905938944 bytes
Log Highlights:	Full Media Hashes 0 - 60060155903: ee217bc4fa4f3d1b4021d29b065aa9ec 117304992 sectors (60060155904 bytes) imaged Source SHA1 rehash: F7069EDCBEAC863C88DECED82159F22DA96BE99B Settings: imageSegmentSize 578.1 MB diskArbitration Off Image file segments

Test Case DA-06-FW MacForensicsLab 2.5.5	
	1 501 603979776 Mar 4 14:50 da-06-fw.002.dmgpart 2 501 603979776 Mar 4 14:50 da-06-fw.003.dmgpart 3 501 603979776 Mar 4 14:51 da-06-fw.004.dmgpart . . . 98 501 603979776 Mar 4 15:31 da-06-fw.099.dmgpart 99 501 266158080 Mar 4 15:31 da-06-fw.100.dmgpart 100 501 603979776 Mar 4 14:49 da-06-fw.dmg
Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	as expected

Analysis:	Expected results achieved

5.2.2 DA–06–SATA28

Test Case DA-06-SATA28 MacForensicsLab 2.5.5	
Case Summary:	DA-06 Acquire a physical device using access interface AI to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Richelieu
Test Date:	Thu Apr 9 09:56:11 2009
Drives:	src(01-sata) dst (none) other (52-SATA)
Source Setup:	src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C > src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 > 156301488 total sectors (80026361856 bytes) Model (0JD-32HKA0) serial # (WD-WMAJ91448529)

Log Highlights:	Full Media Hashes 0 - 80026361855: 4951236428c36b944e62e8d65862dcbef05f282c 156301488 sectors (80026361856 bytes) imaged
	
	Source SHA1 rehash: 4951236428C36B944E62E8D65862DCBEF05F282C
	
	Settings: imageSegmentSize 628.9 MB diskArbitration Off
	
	Image file segments
	  1 658505728 Apr 9 10:05 da-06-sata28.002.dmgpart
	  2 658505728 Apr 9 10:05 da-06-sata28.003.dmgpart
	  3 658505728 Apr 9 10:06 da-06-sata28.004.dmgpart
	  . . .
	120 658505728 Apr 9 11:10 da-06-sata28.121.dmgpart
	121 347168768 Apr 9 11:10 da-06-sata28.122.dmgpart
	122 658505728 Apr 9 10:04 da-06-sata28.dmg

Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.3 DA–06–SATA48

Test Case DA-06-SATA48 MacForensicsLab 2.5.5	
Case Summary:	DA-06 Acquire a physical device using access interface AI to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Fri Apr 10 14:34:56 2009
Drives:	src(0b-sata) dst (none) other (3A-SATA)

Source Setup:	src hash (SHA256): <
	0026805624818CAEDAD12019DCDB16E79DE3C47CFE1C717193F9880B3DB32A9F >
	src hash (SHA1): < DA892EE968DD828F2F1B6825C1D3EF35062A0737 >
	src hash (MD5): < 1873847F597A69D0F5DB991B67E84F92 >
	
	Reference SHA256 hashes, Win size: 8192 (sectors) 4194304 (bytes)
	  1 0 - 8191
	6495BB969D4F2F6B259F1EB5A4D201A7D54EA3029650C967136F02837B6136DC
	  2 8192 - 16383
	B8894EB2D4D8BE209EF2F4FE9824600AFC678809FDA97A7FD0E4E8369E24EBED
	  3 16384 - 24575
	A3334C9BE51BC9B8D1CF35826E2A5C65B4421B142E05D9E024590C9E251D2841
	   . . .
	 59617 488374272 - 488382463
	7842745D701C0924D00407D763CA45AC8EF5D19CAC7D2096C1697A1B3BE00D53
	 59618 488382464 - 488390655
	BE42116A995094C4C0119F4338E2EC16B598D16707C3C18FDD6D626E5BBE5163
	 59619 488390656 - 488397167
	90CFA3DCDFDFE622E4B6C52A822521ECE3DA7672C2D3424237A58914E0065989
	488397168 total sectors (250059350016 bytes)
	30400/254/63 (max cyl/hd values)
	30401/255/63 (number of cyl/hd)
	Model (00JD-22FYB0) serial # (WD-WMAEH2677545)

Log Highlights:	Block Hashes 1 0 - 4194303: 6495bb969d4f2f6b259f1eb5a4d201a7d54ea3029650c967136f02837b6136dc 2 4194304 - 8388607: b8894eb2d4d8be209ef2f4fe9824600afc678809fda97a7fd0e4e8369e24ebed 3 8388608 - 12582911: a3334c9be51bc9b8d1cf35826e2a5c65b4421b142e05d9e024590c9e251d2841 . . . 59617 250047627264 - 250051821567: 7842745d701c0924d00407d763ca45ac8ef5d19cac7d2096c1697a1b3be00d53 59618 250051821568 - 250056015871: be42116a995094c4c0119f4338e2ec16b598d16707c3c18fdd6d626e5bbe5163 59619 250056015872 - 250059350015: 90cfa3dcdfdfe622e4b6c52a822521ece3da7672c2d3424237a58914e0065989

Test Case DA-06-SATA48 MacForensicsLab 2.5.5	

	Full Media Hashes
	0 - 250059350015:
	0026805624818caedad12019dcdb16e79de3c47cfe1c717193f9880b3db32a9f
	488397168 sectors (250059350016 bytes) imaged
	
	Source SHA1 rehash: DA892EE968DD828F2F1B6825C1D3EF35062A0737
	
	Settings:
	imageSegmentSize 1.9 GB
	hashWindow 4 MB
	diskArbitration Off
	
	Image file segments
	  1 501 2038431744 Mar 11 15:48 da-06-sata48.002.dmgpart
	  2 501 2038431744 Mar 11 15:50 da-06-sata48.003.dmgpart
	  3 501 2038431744 Mar 11 15:52 da-06-sata48.004.dmgpart
	. . .
	121 501 2038431744 Mar 11 20:19 da-06-sata48.122.dmgpart
	122 501 1370677248 Mar 11 20:20 da-06-sata48.123.dmgpart
	123 501 2038431744 Mar 11 15:46 da-06-sata48.dmg

Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	hash byte range incorrect
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.4 DA–06–USB

Test Case DA-06-USB MacForensicsLab 2.5.5	
Case Summary:	DA-06 Acquire a physical device using access interface AI to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Richelieu
Test Date:	Tue Apr 7 16:30:55 2009
Drives:	src(63-fu2) dst (none) other (52-SATA)

Source Setup:	src hash (SHA256): <
	EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D >
	src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B >
	src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC >
	
	Reference MD5 hashes, Win size: 4096 (sectors) 2097152 (bytes)
	   1 0 - 4095 634558DBFF106AE4027A59F46A6524A1 -
	   2 4096 - 8191 FD402484E747376816D03D61BE03CDE0 -
	   3 8192 - 12287 7FE79F64691E7D0696CF546184230A39 -
	  . . .
	 28637 117293056 - 117297151 C2590555FEEB9402442F2C52AD6F9714 -
	 28638 117297152 - 117301247 A223ED111C6A66061FA5B73D2D4C2580 -
	 28639 117301248 - 117304991 11009E96D53E3962B8D431835410098C -
	
	Reference SHA1 hashes, Win size: 4096 (sectors) 2097152 (bytes)
	   1 0 - 4095 C58F61D049CF16C16EE794E20AC1FFB46A31A7C2 -
	   2 4096 - 8191 9B12AF7B5E892E3F558A29410DC9B38DD8C7A753 -
	   3 8192 - 12287 E2115AA0BF73ED473D6687A6D519171DEEBD8FDF -
	  . . .
	 28637 117293056 - 117297151 76B4860C18974C796E3D6672FA902EA594BF10AE -
	 28638 117297152 - 117301247 B306DCFEE2EAF3C07D71A373AACBE1B7BAD7E1AF -
	 28639 117301248 - 117304991 96B933A0E4D577CC1D7D49B883C3BE7E562FE77A -
	117304992 total sectors (60060155904 bytes)
	Model (SP0612N) serial # ()
	 N Start LBA Length Start C/H/S End C/H/S boot Partition type
	 1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16
	 2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended
	 3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32
	 4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	 5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	 6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	1 004192902 sectors 2146765824 bytes
	3 113097537 sectors 57905938944 bytes

Log Highlights:	Block Hashes 1 0 - 2097151: 634558dbff106ae4027a59f46a6524a1 1 0 - 2097151: c58f61d049cf16c16ee794e20ac1ffb46a31a7c2 2 2097152 - 4194303: fd402484e747376816d03d61be03cde0 2 2097152 - 4194303: 9b12af7b5e892e3f558a29410dc9b38dd8c7a753 3 4194304 - 6291455: 7fe79f64691e7d0696cf546184230a39 3 4194304 - 6291455: e2115aa0bf73ed473d6687a6d519171deebd8fdf

```
Test Case DA-06-USB MacForensicsLab 2.5.5
            . . .
       57277 60054044672 - 60056141823: c2590555feeb9402442f2c52ad6f9714
       57277 60054044672 - 60056141823: 76b4860c18974c796e3d6672fa902ea594bf10ae
       57278 60056141824 - 60058238975: a223ed111c6a66061fa5b73d2d4c2580
       57278 60056141824 - 60058238975: b306dcfee2eaf3c07d71a373aacbe1b7bad7e1af
       57279 60058238976 - 60060155903: 11009e96d53e3962b8d431835410098c
       57279 60058238976 - 60060155903: 96b933a0e4d577cc1d7d49b883c3be7e562fe77a

       Full Media Hashes
       0 - 60060155903: ee217bc4fa4f3d1b4021d29b065aa9ec
       0 - 60060155903: f7069edcbeac863c88deced82159f22da96be99b
       234609984 sectors (120120311808 bytes) imaged

       Source SHA1 rehash: F7069EDCBEAC863C88DECED82159F22DA96BE99B

       Settings:
       imageSegmentSize 2.4 GB
       hashWindow 2 Mb
       diskArbitration Off

       Image file segments
         1      2575302656 Apr 8 17:30 da-06-usb.002.dmgpart
         2      2575302656 Apr 8 17:37 da-06-usb.003.dmgpart
         3      2575302656 Apr 8 17:43 da-06-usb.004.dmgpart
        . . .
        46      2575302656 Apr 8 19:41 da-06-usb.gm.023.dmgpart
        47       828194816 Apr 8 19:43 da-06-usb.gm.024.dmgpart
        48      2575302656 Apr 8 17:24 da-06-usb.gm.dmg
```

Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	hash byte range incorrect
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	as expected

Analysis:	Expected results not achieved

5.2.5 DA–07–CF

Test Case DA-07-CF MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Wed Mar 4 23:49:08 2009
Drives:	src(c1-cf) dst (none) other (3A-SATA)

Source Setup:	src hash (SHA256): < C7CF0218222DF80D5316511D6814266C7FA507C13F795AD3D323BB73C1590D80 >
	src hash (SHA1): < 5B8235178DF99FA307430C088F81746606638A0B >
	src hash (MD5): < 776DF8B4D2589E21DEBCF589EDC16D78 >
	
	Reference MD5 hashes, Win size: 512 (bytes)
	   1 0 - 511 = 69274B7DC902C071FD01EDC0F7D432A6
	   2 512 - 1023 = 8389BDDC6646C778DA3236A86907E6BA
	   3 1024 - 1535 = F018E29C0F7EB9482D513E2E4C4396BB
	  . . .
	503806 257948160 - 257948671 = A1287C4F987325AFCD15F1AF13AE52AB
	503807 257948672 - 257949183 = 4990ACEA89E30FA42D69EDD5D69560C2
	503808 257949184 - 257949695 = BF619EAC0CDF3F68D496EA9344137E8B
	
	Reference SHA1 hashes, Win size: 512 (bytes)
	   1 0 - 511 = 5544162F2E59A4BAF6236A8A176AAA0E14C067A2
	   2 512 - 1023 = 33ACF6AB95E8370D5B909876DD2BD56E11A4C65B
	   3 1024 - 1535 = 92BB4CF0F8BDB935052E80D4BECE2AF368D2D141
	  . . .
	503806 257948160 - 257948671 = 5834555EF94E6EC79F74453C4DB6771D7568E4B8
	503807 257948672 - 257949183 = E953014651114EF71077C6713D00EAB7746CF693
	503808 257949184 - 257949695 = 5C3EB80066420002BC3DCC7CA4AB6EFAD7ED4AE5
	503808 total sectors (257949696 bytes)
	Model (CF) serial # ()
	 N Start LBA Length Start C/H/S End C/H/S boot Partition type
	 1 P 778135908 1141509631 0357/116/40 0357/032/45 Boot 72 other
	 2 P 168689522 1936028240 0288/115/43 0367/114/50 Boot 65 other
	 3 P 1869881465 1936028192 0366/032/33 0357/032/43 Boot 79 other
	 4 P 2885681152 000055499 0372/097/50 0000/010/00 Boot 0D other
	1 1141509631 sectors 584452931072 bytes
	2 1936028240 sectors 991246458880 bytes
	3 1936028192 sectors 991246434304 bytes
	4 000055499 sectors 28415488 bytes
	Variation (cf) src (c1-cf)

Log Highlights:	Block Hashes 1 0 - 511: 69274b7dc902c071fd01edc0f7d432a6 1 0 - 511: 5544162f2e59a4baf6236a8a176aaa0e14c067a2 2 512 - 1023: 8389bddc6646c778da3236a86907e6ba 2 512 - 1023: 33acf6ab95e8370d5b909876dd2bd56e11a4c65b

```
Test Case DA-07-CF MacForensicsLab 2.5.5
              3 1024 - 1535: f018e29c0f7eb9482d513e2e4c4396bb
              3 1024 - 1535: 92bb4cf0f8bdb935052e80d4bece2af368d2d141
              . . .
              503806 257948160 - 257948671: a1287c4f987325afcd15f1af13ae52ab
              503806 257948160 - 257948671: 5834555ef94e6ec79f74453c4db6771d7568e4b8
              503807 257948672 - 257949183: 4990acea89e30fa42d69edd5d69560c2
              503807 257948672 - 257949183: e953014651114ef71077c6713d00eab7746cf693
              503808 257949184 - 257949695: bf619eac0cdf3f68d496ea9344137e8b
              503808 257949184 - 257949695: 5c3eb80066420002bc3dcc7ca4ab6efad7ed4ae5

              Full Media Hashes
              0 - 257949695: 776df8b4d2589e21debcf589edc16d78
              0 - 257949695: 5b8235178df99fa307430c088f81746606638a0b
              503808 sectors (257949696 bytes) imaged

              Source SHA1 rehash: 5B8235178DF99FA307430C088F81746606638A0B

              Settings:
              imageSegmentSize full size
              hashWindow 512b
              diskArbitration Off

              Image file segments
                1     501 257949696 Mar 30 11:41 da-07-cf.dmg
```

Results:	Assertion & Expected Result	Actual Result
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	as expected
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	as expected

Analysis:	Expected results achieved

5.2.6 DA–07–EXT2

Test Case DA-07-EXT2 MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Tue Mar 3 05:47:01 2009
Drives:	src(43) dst (none) other (3A-SATA)

Source Setup:	src hash (SHA256): <
	2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E >
	src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 >
	src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 >
	
	Reference MD5 hashes, Win size: 128 (sectors) 65536 (bytes)
	  1 0 - 127 C1C296A3043E966C8A2A156D589EDC83 -
	  2 128 - 255 FCD6BCB56C1689FCEF28B57C22475BAD -
	  3 256 - 383 FCD6BCB56C1689FCEF28B57C22475BAD -
	   . . .
	 81955 10490112 - 10490239 A7FAFAF2C3C2103EE1A8E0E62A38A5EC -
	 81956 10490240 - 10490367 12C8BB8420C435258B59E1AD44C0266E -
	 81957 10490368 - 10490381 97F8760A2BFEF1104FEAC6AA0D99F939 -
	
	Reference SHA1 hashes, Win size: 128 (sectors) 65536 (bytes)
	  1 0 - 127 DCE4D3CA97207208A189B5C2580C558AAAA00DE5 -
	  2 128 - 255 1ADC95BEBE9EEA8C112D40CD04AB7A8D75C4F961 -
	  3 256 - 383 1ADC95BEBE9EEA8C112D40CD04AB7A8D75C4F961 -
	   . . .
	 81955 10490112 - 10490239 AF6F3EEAEEB5685702A2157723FF927140723CAB -
	 81956 10490240 - 10490367 D34C5A1D58BA8865DB81F4B59B32C04CBCE61770 -
	 81957 10490368 - 10490381 8BD6F00444063FA25C4F21DFDC5CAF362E76DD12 -
	
	Reference SHA256 hashes, Win size: 128 (sectors) 65536 (bytes)
	  1 0 - 127
	409F070AE2668FA74F5596FD08DE9C3C680869AC2DE4444AF6C6965D4FE37508
	  2 128 - 255
	DE2F256064A0AF797747C2B97505DC0B9F3DF0DE4F489EAC731C23AE9CA9CC31
	  3 256 - 383
	DE2F256064A0AF797747C2B97505DC0B9F3DF0DE4F489EAC731C23AE9CA9CC31
	   . . .
	 81955 10490112 - 10490239
	908829881AFC60570F2A4A185203BCF08D75C91E00D8B6B8F2ACE02B8E08A568
	 81956 10490240 - 10490367
	783AC5EC7EE4937C97ED98C6C0500DF9E0DC0D852FD3F471366903F73206A5B1
	 81957 10490368 - 10490381
	DA05C44AB27B3291C09FAC293D94922C0E6CEACB29406BCDB91C87C542C89023
	78125000 total sectors (40000000000 bytes)
	Model (0BB-75JHC0) serial # (WD-WMAMC46588)
	 N Start LBA Length Start C/H/S End C/H/S boot Partition type
	 1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X

Test Case DA-07-EXT2 MacForensicsLab 2.5.5	

	` 2 X 020980890 057143205 1023/000/01 1023/254/63  0F extended`
	` 3 S 000000063 000032067 1023/001/01 1023/254/63  01 Fat12`
	` 4 x 000032130 002104515 1023/000/01 1023/254/63  05 extended`
	` 5 S 000000063 002104452 1023/001/01 1023/254/63  06 Fat16`
	` 6 x 002136645 004192965 1023/000/01 1023/254/63  05 extended`
	` 7 S 000000063 004192902 1023/001/01 1023/254/63  16 other`
	` 8 x 006329610 008401995 1023/000/01 1023/254/63  05 extended`
	` 9 S 000000063 008401932 1023/001/01 1023/254/63  0B Fat32`
	`10 x 014731605 010490445 1023/000/01 1023/254/63  05 extended`
	`11 S 000000063 010490382 1023/001/01 1023/254/63  83 Linux`
	`12 x 025222050 004209030 1023/000/01 1023/254/63  05 extended`
	`13 S 000000063 004208967 1023/001/01 1023/254/63  82 Linux swap`
	`14 x 029431080 027712125 1023/000/01 1023/254/63  05 extended`
	`15 S 000000063 027712062 1023/001/01 1023/254/63  07 NTFS`
	`16 S 000000000 000000000 0000/000/00 0000/000/00  00 empty entry`
	`17 P 000000000 000000000 0000/000/00 0000/000/00  00 empty entry`
	`18 P 000000000 000000000 0000/000/00 0000/000/00  00 empty entry`
	`1 020980827 sectors 10742183424 bytes`
	`3 000032067 sectors 16418304 bytes`
	`5 002104452 sectors 1077479424 bytes`
	`7 004192902 sectors 2146765824 bytes`
	`9 008401932 sectors 4301789184 bytes`
	`11 010490382 sectors 5371075584 bytes`
	`13 004208967 sectors 2154991104 bytes`
	`15 027712062 sectors 14188575744 bytes`
	`Variation (ext2) src (43)`
	
	`43ext2-md5sum 5371075583 C7A84DE9ACBCB05463604CE8823D0874`
	`43ext2-sha1sum 5371075583 283BCC32DE892C12C37698AF7E38703619E57F57`
	`43ext2-sha256sum 5371075583`
	`61F0030EDB667BA43A26A24A9A25281817537D2261D687F7EDCB32B5E60E39E7`

Log
Highlights:
	`Block Hashes`
	`1 0 - 65535: c1c296a3043e966c8a2a156d589edc83`
	`1 0 - 65535: dce4d3ca97207208a189b5c2580c558aaaa00de5`
	`1 0 - 65535:`
	`409f070ae2668fa74f5596fd08de9c3c680869ac2de4444af6c6965d4fe37508`
	`2 65536 - 131071: fcd6bcb56c1689fcef28b57c22475bad`
	`2 65536 - 131071: 1adc95bebe9eea8c112d40cd04ab7a8d75c4f961`
	`2 65536 - 131071:`
	`de2f256064a0af797747c2b97505dc0b9f3df0de4f489eac731c23ae9ca9cc31`
	`3 131072 - 196607: fcd6bcb56c1689fcef28b57c22475bad`
	`3 131072 - 196607: 1adc95bebe9eea8c112d40cd04ab7a8d75c4f961`
	`3 131072 - 196607:`
	`de2f256064a0af797747c2b97505dc0b9f3df0de4f489eac731c23ae9ca9cc31`
	`  . . .`
	`81955 5370937344 - 5371002879: a7fafaf2c3c2103ee1a8e0e62a38a5ec`
	`81955 5370937344 - 5371002879: af6f3eeaeeb5685702a2157723ff927140723cab`
	`81955 5370937344 - 5371002879:`
	`908829881afc60570f2a4a185203bcf08d75c91e00d8b6b8f2ace02b8e08a568`
	`81956 5371002880 - 5371068415: 12c8bb8420c435258b59e1ad44c0266e`
	`81956 5371002880 - 5371068415: d34c5a1d58ba8865db81f4b59b32c04cbce61770`
	`81956 5371002880 - 5371068415:`
	`783ac5ec7ee4937c97ed98c6c0500df9e0dc0d852fd3f471366903f73206a5b1`
	`81957 5371068416 - 5371075583: 97f8760a2bfef1104feac6aa0d99f939`
	`81957 5371068416 - 5371075583: 8bd6f00444063fa25c4f21dfdc5caf362e76dd12`
	`81957 5371068416 - 5371075583:`
	`da05c44ab27b3291c09fac293d94922c0e6ceacb29406bcdb91c87c542c89023`
	
	`Full Media Hashes`
	`0 - 5371075583: c7a84de9acbcb05463604ce8823d0874`
	`0 - 5371075583: 283bcc32de892c12c37698af7e38703619e57f57`
	`0 - 5371075583:`
	`61f0030edb667ba43a26a24a9a25281817537d2261d687f7edcb32b5e60e39e7`
	`10490382 sectors (5371075584 bytes) imaged`
	
	`Settings:`
	`imageSegmentSize 1.9 GB`
	`hashWindow 64KB`

Test Case DA-07-EXT2 MacForensicsLab 2.5.5	

	diskArbitration On
	Write Block: 32 Tableau T5
	
	Image file segments
	  1 501 2038431744 Mar 3 09:30 DA-07-EXT2.002.dmgpart
	  2 501 1294212096 Mar 3 09:32 DA-07-EXT2.003.dmgpart
	  3 501 2038431744 Mar 3 09:27 DA-07-EXT2.dmg

Results:		
	Assertion & Expected Result	**Actual Result**
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	hash byte range incorrect
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.7 DA–07–F12

Test Case DA-07-F12 MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Mon Mar 9 15:54:57 2009
Drives:	src(43) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA256): < 2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E > src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 > src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 > 78125000 total sectors (40000000000 bytes) Model (0BB-75JHC0) serial # (WD-WMAMC46588) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X 2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended 3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12 4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended 5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16 6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended 7 S 000000063 004192902 1023/001/01 1023/254/63 16 other 8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended 9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32 10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended 11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux 12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended 13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap 14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended 15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS 16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020980827 sectors 10742183424 bytes 3 000032067 sectors 16418304 bytes 5 002104452 sectors 1077479424 bytes 7 004192902 sectors 2146765824 bytes 9 008401932 sectors 4301789184 bytes 11 010490382 sectors 5371075584 bytes 13 004208967 sectors 2154991104 bytes 15 027712062 sectors 14188575744 bytes Variation (f12) src (43) 43F12-md5sum 16418303 CBA0C9984F51778E89DEF0C6BED06864
Log Highlights:	Full Media Hashes 0 - 16418303: cba0c9984f51778e89def0c6bed06864 32067 sectors (16418304 bytes) imaged

Test Case DA-07-F12 MacForensicsLab 2.5.5

```
Settings:
imageSegmentSize full size
diskArbitration Off
Write Block: 62 Diskology Disk Jockey PRO Forensic

Image file segments
  1     501 16418304 Mar 9 16:11 Disk Image.dmg
```

Results:

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis: Expected results achieved

5.2.8 DA–07–F16

Test Case DA-07-F16 MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Richelieu
Test Date:	Wed Apr 8 16:43:13 2009
Drives:	src(01-ide) dst (none) other (52-SATA)
Source Setup:	src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 > src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E > 78165360 total sectors (40020664320 bytes) Model (0BB-00JHC0) serial # (WD-WMAMC74171) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X 2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended 3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12 4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended 5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16 6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended 7 S 000000063 004192902 1023/001/01 1023/254/63 16 other 8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended 9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32 10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended 11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux 12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended 13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap 14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended 15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS 16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020980827 sectors 10742183424 bytes 3 000032067 sectors 16418304 bytes 5 002104452 sectors 1077479424 bytes 7 004192902 sectors 2146765824 bytes 9 008401932 sectors 4301789184 bytes 11 010490382 sectors 5371075584 bytes 13 004208967 sectors 2154991104 bytes 15 027744192 sectors 14205026304 bytes Variation (f16) src (01-ide) 01F16-md5 1077479423 8B24F3D793188AF2473F69B267AFDA42 01F16-sha1 1077479423 074BA831B10132F4BF9F86AFAB37CB7FEF482C7D
Log Highlights:	Full Media Hashes 0 - 1077479423: 074ba831b10132f4bf9f86afab37cb7fef482c7d 2104452 sectors (1077479424 bytes) imaged Settings:

Test Case DA-07-F16 MacForensicsLab 2.5.5	

	imageSegmentSize 578.1 MB
	diskArbitration Off
	Write Block: 62 Diskology Disk Jockey PRO Forensic
	
	Image file segments
	  1 473499648 Apr 8 16:55 da-07-f16.002.dmgpart
	  2 603979776 Apr 8 16:54 da-07-f16.dmg

Results:

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results achieved

5.2.9 DA–07–F32

Test Case DA-07-F32 MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Maneulito
Test Date:	Mon Apr 6 14:29:05 2009
Drives:	src(01-ide) dst (none) other (38-SATA)
Source Setup:	src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 > src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E > 78165360 total sectors (40020664320 bytes) Model (0BB-00JHC0) serial # (WD-WMAMC74171) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X 2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended 3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12 4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended 5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16 6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended 7 S 000000063 004192902 1023/001/01 1023/254/63 16 other 8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended 9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32 10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended 11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux 12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended 13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap 14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended 15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS 16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020980827 sectors 10742183424 bytes 3 000032067 sectors 16418304 bytes 5 002104452 sectors 1077479424 bytes 7 004192902 sectors 2146765824 bytes 9 008401932 sectors 4301789184 bytes 11 010490382 sectors 5371075584 bytes 13 004208967 sectors 2154991104 bytes 15 027744192 sectors 14205026304 bytes Variation (f32) src (01-ide) 01F32-md5 4301789183 BFF7DC64C54339DA2A9D7972C076B514 01F32-sha1 4301789183 B861D9E999F39750B484FFB693FF69DEC090C6B8 01F32-sha256 8401931 CAE3A4CC33D59548063255D2AA4016940AC712DD96985AD9B94FF271CC3E943E
Log Highlights:	Full Media Hashes 0 - 4301789183:

```
Test Case DA-07-F32 MacForensicsLab 2.5.5
            cae3a4cc33d59548063255d2aa4016940ac712dd96985ad9b94ff271cc3e943e
            8401932 sectors (4301789184 bytes) imaged

            Settings:
            imageSegmentSize 628.9 MB
            diskArbitration Off
            Write Block: 32 Tableau T5

            Image file segments
              1      658505728 Apr 6 09:46 da-07-f32.002.dmgpart
              2      658505728 Apr 6 09:47 da-07-f32.003.dmgpart
              3      658505728 Apr 6 09:48 da-07-f32.004.dmgpart
              4      658505728 Apr 6 09:49 da-07-f32.005.dmgpart
              5      658505728 Apr 6 09:50 da-07-f32.006.dmgpart
              6      350754816 Apr 6 09:51 da-07-f32.007.dmgpart
              7      658505728 Apr 6 09:45 da-07-f32.dmg
```

Results:

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis: Expected results achieved

5.2.10   DA–07–F32X

Test Case DA-07-F32X MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source.
	AM-02 The tool acquires digital source DS.
	AM-03 The tool executes in execution environment XE.
	AM-05 If image file creation is specified, the tool creates an image file on file system type FS.
	AM-06 All visible sectors are acquired from the digital source.
	AM-08 All sectors acquired from the digital source are acquired accurately.
	AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool.
	AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size.
	AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source.
	AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.
	AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Fri Mar 6 00:13:52 2009
Drives:	src(43) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA256): < 2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E >
	src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 >
	src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 >
	78125000 total sectors (40000000000 bytes)
	Model (0BB-75JHC0) serial # (WD-WMAMC46588)
	N Start LBA Length Start C/H/S End C/H/S boot Partition type
	1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X
	2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended
	3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12
	4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended
	5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16
	6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended
	7 S 000000063 004192902 1023/001/01 1023/254/63 16 other
	8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended
	9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32
	10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended
	11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux
	12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended
	13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap
	14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended
	15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS
	16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	1 020980827 sectors 10742183424 bytes
	3 000032067 sectors 16418304 bytes
	5 002104452 sectors 1077479424 bytes
	7 004192902 sectors 2146765824 bytes
	9 008401932 sectors 4301789184 bytes
	11 010490382 sectors 5371075584 bytes
	13 004208967 sectors 2154991104 bytes
	15 027712062 sectors 14188575744 bytes
	Variation (f32x) src (43)
	43F32x-md5sum 10742183424 5980CB0FA68E9862C65765DF50F00906
	43F32x-sha1sum 10742183423 379C1AC47AF956FC8C80389C2A7427A7F8FB4E89
Log Highlights:	Full Media Hashes
	0 - 10742183423: 379c1ac47af956fc8c80389c2a7427a7f8fb4e89

Test Case DA-07-F32X MacForensicsLab 2.5.5	

	20980827 sectors (10742183424 bytes) imaged
	
	Settings:
	imageSegmentSize 1.9 GB
	diskArbitration Off
	Write Block: 60 Forensic UltraDock v4
	
	Image file segments
	  1 501 2038431744 Mar 5 12:38 da-07-f32x.002.dmgpart
	  2 501 2038431744 Mar 5 12:39 da-07-f32x.003.dmgpart
	  3 501 2038431744 Mar 5 12:40 da-07-f32x.004.dmgpart
	  4 501 2038431744 Mar 5 12:41 da-07-f32x.005.dmgpart
	  5 501 550024704 Mar 5 12:41 da-07-f32x.006.dmgpart
	  6 501 2038431744 Mar 5 12:36 da-07-f32x.dmg

Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results achieved

5.2.11 DA–07–NTFS

Test Case DA-07-NTFS MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source.
	AM-02 The tool acquires digital source DS.
	AM-03 The tool executes in execution environment XE.
	AM-05 If image file creation is specified, the tool creates an image file on file system type FS.
	AM-06 All visible sectors are acquired from the digital source.
	AM-08 All sectors acquired from the digital source are acquired accurately.
	AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool.
	AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size.
	AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source.
	AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.
	AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Richelieu
Test Date:	Wed Apr 8 15:20:05 2009
Drives:	src(01-ide) dst (none) other (52-SATA)
Source Setup:	src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 >
	src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E >
	78165360 total sectors (40020664320 bytes)
	Model (0BB-00JHC0) serial # (WD-WMAMC74171)
	N Start LBA Length Start C/H/S End C/H/S boot Partition type
	1 P 000000063 020980827 0000/000/01 1023/254/63 0C Fat32X
	2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended
	3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12
	4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended
	5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16
	6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended
	7 S 000000063 004192902 1023/001/01 1023/254/63 16 other
	8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended
	9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32
	10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended
	11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux
	12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended
	13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap
	14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended
	15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS
	16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	1 020980827 sectors 10742183424 bytes
	3 000032067 sectors 16418304 bytes
	5 002104452 sectors 1077479424 bytes
	7 004192902 sectors 2146765824 bytes
	9 008401932 sectors 4301789184 bytes
	11 010490382 sectors 5371075584 bytes
	13 004208967 sectors 2154991104 bytes
	15 027744192 sectors 14205026304 bytes
	Variation (ntfs) src (01-ide)
	01NTFS-md5 14205026304 92B27B30BEE8B0FFBA8C660FA1590D49
	01NTFS-sha1 14205026304 0FBA4C36295CB9622CD815577429C3A588C34D09
	01NTFS-sha256 14205026304
	65FCD168163625E5EB74255B2A981B6F1C9D6259AF8A0851369101986A7ABC09
Log Highlights:	Full Media Hashes
	0 - 14205026303: 0fba4c36295cb9622cd815577429c3a588c34d09

Test Case DA-07-NTFS MacForensicsLab 2.5.5	

	27744192 sectors (14205026304 bytes) imaged
	
	Settings:
	imageSegmentSize 2.4 GB
	diskArbitration Off
	Write Block: 32 Tableau T5
	
	Image file segments
	  1 2575302656 Apr 8 15:46 da-07-ntfs.002.dmgpart
	  2 2575302656 Apr 8 15:48 da-07-ntfs.003.dmgpart
	  3 2575302656 Apr 8 15:50 da-07-ntfs.004.dmgpart
	  4 2575302656 Apr 8 15:53 da-07-ntfs.005.dmgpart
	  5 1328513024 Apr 8 15:54 da-07-ntfs.006.dmgpart
	  6 2575302656 Apr 8 15:43 da-07-ntfs.dmg

Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results achieved

5.2.12   DA–07–OSX

Test Case DA-07-OSX MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Fri Mar 6 11:18:18 2009
Drives:	src(4B-sata) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 70CC62B43F6A41CA4D6760AA0B9B4C415D3F48E2 > src hash (MD5): < 746B4C06CDD5FBD67C0820DB4325B40C > 156301488 total sectors (80026361856 bytes) Model (ST380815AS) serial # (6QZ5C9V5) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020971520 0000/001/01 1023/254/63 AF other 2 P 020971629 010485536 1023/254/63 1023/254/63 AF other 3 P 031457223 006291456 1023/254/63 1023/254/63 A8 other 4 X 037748679 008388694 1023/254/63 1023/254/63 05 extended 5 S 000000039 004194304 1023/254/63 1023/254/63 AF other 6 x 004194343 004194351 1023/254/63 1023/254/63 05 extended 7 S 000000047 004194304 1023/254/63 1023/254/63 AF other 8 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020971520 sectors 10737418240 bytes 2 010485536 sectors 5368594432 bytes 3 006291456 sectors 3221225472 bytes 5 004194304 sectors 2147483648 bytes 7 004194304 sectors 2147483648 bytes Variation (osx) src (4b-sata) osx-sha1: 3DE70998AD136E66CD09B9B4F2F5164E77B3B705
Log Highlights:	Full Media Hashes 0 - 5368594431: 3de70998ad136e66cd09b9b4f2f5164e77b3b705 10485536 sectors (5368594432 bytes) imaged Settings: imageSegmentSize full size diskArbitration Off Write Block: 37 WiebeTech Forensic ComboDock v4 Image file segments 1 501 5368594432 Mar 6 12:20 da-07-osx.dmg
Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected

Test Case DA-07-OSX MacForensicsLab 2.5.5		
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	option not tested
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked
Analysis:	Expected results achieved	

5.2.13   DA–07–OSXC

Test Case DA-07-OSXC MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Thu Mar 12 11:35:26 2009
Drives:	src(4B-sata) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 70CC62B43F6A41CA4D6760AA0B9B4C415D3F48E2 > src hash (MD5): < 746B4C06CDD5FBD67C0820DB4325B40C > 156301488 total sectors (80026361856 bytes) Model (ST380815AS) serial # (6QZ5C9V5) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020971520 0000/001/01 1023/254/63 AF other 2 P 020971629 010485536 1023/254/63 1023/254/63 AF other 3 P 031457223 006291456 1023/254/63 1023/254/63 A8 other 4 X 037748679 008388694 1023/254/63 1023/254/63 05 extended 5 S 000000039 004194304 1023/254/63 1023/254/63 AF other 6 x 004194343 004194351 1023/254/63 1023/254/63 05 extended 7 S 000000047 004194304 1023/254/63 1023/254/63 AF other 8 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020971520 sectors 10737418240 bytes 2 010485536 sectors 5368594432 bytes 3 006291456 sectors 3221225472 bytes 5 004194304 sectors 2147483648 bytes 7 004194304 sectors 2147483648 bytes Variation (osxc) src (4b-sata) osxc-sha1: 2D6303D74F9EDE617639643DCCF41EC2091D5F37
Log Highlights:	Full Media Hashes 0 - 2147483647: 2d6303d74f9ede617639643dccf41ec2091d5f37 4194304 sectors (2147483648 bytes) imaged Settings: imageSegmentSize full size diskArbitration Off Write Block: 62 Diskology Disk Jockey PRO Forensic Image file segments 1 501 2147483648 Mar 12 11:47 da-07-osxc.dmg

Results:		
	Assertion & Expected Result	**Actual Result**
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected

Test Case DA-07-OSXC MacForensicsLab 2.5.5		
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	option not tested
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked
Analysis:	Expected results achieved	

5.2.14   DA–07–OSXCJ

Test Case DA-07-OSXCJ MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Thu Mar 12 12:01:18 2009
Drives:	src(4B-sata) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 70CC62B43F6A41CA4D6760AA0B9B4C415D3F48E2 > src hash (MD5): < 746B4C06CDD5FBD67C0820DB4325B40C > 156301488 total sectors (80026361856 bytes) Model (ST380815AS) serial # (6QZ5C9V5) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020971520 0000/001/01 1023/254/63 AF other 2 P 020971629 010485536 1023/254/63 1023/254/63 AF other 3 P 031457223 006291456 1023/254/63 1023/254/63 A8 other 4 X 037748679 008388694 1023/254/63 1023/254/63 05 extended 5 S 000000039 004194304 1023/254/63 1023/254/63 AF other 6 x 004194343 004194351 1023/254/63 1023/254/63 05 extended 7 S 000000047 004194304 1023/254/63 1023/254/63 AF other 8 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020971520 sectors 10737418240 bytes 2 010485536 sectors 5368594432 bytes 3 006291456 sectors 3221225472 bytes 5 004194304 sectors 2147483648 bytes 7 004194304 sectors 2147483648 bytes Variation (osxcj) src (4b-sata) osxcj-sha1: 29EA089958EF2A695081712FFBA68BA5164C980B
Log Highlights:	Full Media Hashes 0 - 2147483647: 29ea089958ef2a695081712ffba68ba5164c980b 4194304 sectors (2147483648 bytes) imaged Settings: imageSegmentSize full size diskArbitration Off Write Block: 62 Diskology Disk Jockey PRO Forensic Image file segments 1 501 2147483648 Mar 12 12:22 da-07-osxcj.dmg

Results:		
	Assertion & Expected Result	**Actual Result**
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected

Test Case DA-07-OSXCJ MacForensicsLab 2.5.5		
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	option not tested
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked
Analysis:	Expected results achieved	

5.2.15   DA–07–OSXJ

Test Case DA-07-OSXJ MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Wed Mar 25 10:59:42 2009
Drives:	src(4B-sata) dst (none) other (3A-SATA)

Source Setup:	src hash (SHA1): < 70CC62B43F6A41CA4D6760AA0B9B4C415D3F48E2 >
	src hash (MD5): < 746B4C06CDD5FBD67C0820DB4325B40C >
	
	Reference SHA1 hashes, Win size: 8192 (sectors) 4194304 (bytes)
	  1 0 – 8191 4C7D8F6F5B01CD4A43251D3AB63E5C66DD506FA3 –
	  2 8192 – 16383 2BCCBD2F38F15C13EB7D5A89FD9D85F595E23BC3 –
	  3 16384 – 24575 B28A7ED2FB7E98518793C0CBD615D80A76A75E44 –
	  . . .
	 2558 20946944 – 20955135 227AAFEE012AD693FFF3BF442EFF1A4A6AC536A2 –
	 2559 20955136 – 20963327 B2CD0219272BF5CCCE5A87FD6F93932F92E4CD12 –
	 2560 20963328 – 20971519 D62481A4D7DF0B5FD9CB20C8B60A9B8BD797910B –
	156301488 total sectors (80026361856 bytes)
	Model (ST380815AS) serial # (6QZ5C9V5)
	 N Start LBA Length Start C/H/S End C/H/S boot Partition type
	 1 P 000000063 020971520 0000/001/01 1023/254/63 AF other
	 2 P 020971629 010485536 1023/254/63 1023/254/63 AF other
	 3 P 031457223 006291456 1023/254/63 1023/254/63 A8 other
	 4 X 037748679 008388694 1023/254/63 1023/254/63 05 extended
	 5 S 000000039 004194304 1023/254/63 1023/254/63 AF other
	 6 x 004194343 004194351 1023/254/63 1023/254/63 05 extended
	 7 S 000000047 004194304 1023/254/63 1023/254/63 AF other
	 8 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
	1 020971520 sectors 10737418240 bytes
	2 010485536 sectors 5368594432 bytes
	3 006291456 sectors 3221225472 bytes
	5 004194304 sectors 2147483648 bytes
	7 004194304 sectors 2147483648 bytes
	Variation (osxj) src (4b-sata)
	
	osxj-sha1: 37311859444BD914EDAD43D93F2862E76B279A87

Log Highlights:	Block Hashes 1 0 – 4194303: 4c7d8f6f5b01cd4a43251d3ab63e5c66dd506fa3 2 4194304 – 8388607: 2bccbd2f38f15c13eb7d5a89fd9d85f595e23bc3 3 8388608 – 12582911: b28a7ed2fb7e98518793c0cbd615d80a76a75e44 . . . 2558 10724835328 – 10729029631: 227aafee012ad693fff3bf442eff1a4a6ac536a2 2559 10729029632 – 10733223935: b2cd0219272bf5ccce5a87fd6f93932f92e4cd12 2560 10733223936 – 10737418239: d62481a4d7df0b5fd9cb20c8b60a9b8bd797910b Full Media Hashes 0 – 10737418239: 37311859444bd914edad43d93f2862e76b279a87

Test Case DA-07-OSXJ MacForensicsLab 2.5.5	
	20971520 sectors (10737418240 bytes) imaged Settings: imageSegmentSize full size hashWindow 4 MB diskArbitration Off Write Block: 62 Diskology Disk Jockey PRO Forensic Image file segments 1 501 10737418240 Mar 25 11:28 da-o7-osxj.dmg

Results:		
	Assertion & Expected Result	**Actual Result**
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	hash byte range incorrect
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.16   DA–07–OSXU

Test Case DA-07-OSXU MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Fri Mar 6 16:04:33 2009
Drives:	src(4B-SATA) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 70CC62B43F6A41CA4D6760AA0B9B4C415D3F48E2 > src hash (MD5): < 746B4C06CDD5FBD67C0820DB4325B40C > 156301488 total sectors (80026361856 bytes) Model (ST380815AS) serial # (6QZ5C9V5) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020971520 0000/001/01 1023/254/63 AF other 2 P 020971629 010485536 1023/254/63 1023/254/63 AF other 3 P 031457223 006291456 1023/254/63 1023/254/63 A8 other 4 X 037748679 008388694 1023/254/63 1023/254/63 05 extended 5 S 000000039 004194304 1023/254/63 1023/254/63 AF other 6 x 004194343 004194351 1023/254/63 1023/254/63 05 extended 7 S 000000047 004194304 1023/254/63 1023/254/63 AF other 8 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020971520 sectors 10737418240 bytes 2 010485536 sectors 5368594432 bytes 3 006291456 sectors 3221225472 bytes 5 004194304 sectors 2147483648 bytes 7 004194304 sectors 2147483648 bytes Variation (osxu) src (4b-sata) osxu-sha1: D102A01562C82533C052CE6CFBB1D467EC9B5BC6
Log Highlights:	Full Media Hashes 0 - 3221225471: d102a01562c82533c052ce6cfbb1d467ec9b5bc6 6291456 sectors (3221225472 bytes) imaged Settings: imageSegmentSize full size diskArbitration Off Write Block: 34 Tableau T3u Image file segments 1 501 3221225472 Mar 6 16:18 da-07-osxu.dmg

Results:		
	Assertion & Expected Result	**Actual Result**
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected

Test Case DA-07-OSXU MacForensicsLab 2.5.5		
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	option not tested
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked
Analysis:	Expected results achieved	

5.2.17 DA–07–SWAP

Test Case DA-07-SWAP MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Fri Mar 6 17:00:45 2009
Drives:	src(43) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA256): < 2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E > src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 > src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 > 78125000 total sectors (40000000000 bytes) Model (0BB-75JHC0) serial # (WD-WMAMC46588) N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X 2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended 3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12 4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended 5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16 6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended 7 S 000000063 004192902 1023/001/01 1023/254/63 16 other 8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended 9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32 10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended 11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux 12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended 13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap 14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended 15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS 16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry 1 020980827 sectors 10742183424 bytes 3 000032067 sectors 16418304 bytes 5 002104452 sectors 1077479424 bytes 7 004192902 sectors 2146765824 bytes 9 008401932 sectors 4301789184 bytes 11 010490382 sectors 5371075584 bytes 13 004208967 sectors 2154991104 bytes 15 027712062 sectors 14188575744 bytes Variation (swap) src (43) 43swap-md5sum 2154991103 4B602964A30FE20D1B22B046A7375A7C 43swap-sha1sum 2154991103 F5B062CC31DA088DF7FAF8F7A47E500BF4244BCF
Log Highlights:	Full Media Hashes 0 - 2154991103: f5b062cc31da088df7faf8f7a47e500bf4244bcf

Test Case DA-07-SWAP MacForensicsLab 2.5.5

```
4208967 sectors (2154991104 bytes) imaged

Settings:
imageSegmentSize full size
diskArtibtration Off
Write Block: 29 Tableau T5

Image file segments
  1      501 2154991104 Mar 6 17:11 da-07-swap.dmg
```

Results:		
	Assertion & Expected Result	**Actual Result**
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected
	AM-06 All visible sectors acquired.	as expected
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	option not tested
	AO-23 Logged information is correct.	as expected
	AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results achieved

5.2.18 DA–07–THUMB

Test Case DA-07-THUMB MacForensicsLab 2.5.5	
Case Summary:	DA-07 Acquire a digital source of type DS to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Mon Mar 9 10:17:27 2009
Drives:	src(d5-thumb) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A > src hash (MD5): < C843593624B2B3B878596D8760B19954 > 505856 total sectors (258998272 bytes) Model (usb2.0Flash Disk) serial # () N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 778135908 1141509631 0357/116/40 0357/032/45 Boot 72 other 2 P 168689522 1936028240 0288/115/43 0367/114/50 Boot 65 other 3 P 1869881465 1936028192 0366/032/33 0357/032/43 Boot 79 other 4 P 2885681152 000055499 0372/097/50 0000/010/00 Boot 0D other 1 1141509631 sectors 584452931072 bytes 2 1936028240 sectors 991246458880 bytes 3 1936028192 sectors 991246434304 bytes 4 000055499 sectors 28415488 bytes Variation (thumb) src (d5-thumb)
Log Highlights:	Full Media Hashes 0 - 258998271: d68520ef74a336e49dccf83815b7b08fdc53e38a 505856 sectors (258998272 bytes) imaged Source SHA1 rehash: D68520EF74A336E49DCCF83815B7B08FDC53E38A Settings: imageSegmentSize full size diskArbitration Off Image file segments 1 501 258998272 Mar 9 10:32 da-07-thumb.dmg
Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested

Test Case DA-07-THUMB MacForensicsLab 2.5.5			
	AO-23 Logged information is correct.	as expected	
	AO-24 Source is unchanged by acquisition.	as expected	
Analysis:	Expected results achieved		

5.2.19   DA–08–DCO

Test Case DA-08-DCO MacForensicsLab 2.5.5	
Case Summary:	DA-08 Acquire a physical drive with hidden sectors to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-07 All hidden sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Freddy
Test Date:	Wed Apr 1 10:35:38 2009
Drives:	src(15-sata) dst (none) other (3A-SATA)

Source Setup:	src hash (SHA1): < 76B22DDE84CE61F090791DDBB79057529AAF00E1 > src hash (MD5): < 9B4A9D124107819A9CE6F253FE7DC675 >
	
	Reference SHA1 hashes, Win size: 2048 (sectors) 1048576 (bytes)
	   1 0 – 2047 6A260AC126350673890131DE0C0010030B47A7DD –
	   2 2048 – 4095 8AB85F94166D7E92DB407DAD1F788FC704A42603 –
	   3 4096 – 6143 F17E10A7E0B6E1C6EC96392D69321CCC8E801ACF –
	  . . .
	 68358 139995136 – 139997183 1FD4ACAFC0663FB16BF4BCF90ACEED832ED65526 –
	 68359 139997184 – 139999231 1C7CE8F6222CDE085A5EA4081A5CA9F401287723 –
	 68360 139999232 – 140000000 4A722AAF536CA57F9CC72DF83B65075A6BC90C99 –
	156301488 total sectors (80026361856 bytes)
	Model (0JD-00HKA0) serial # (WD-WMAJ91513490)
	
	DCO created with 16301488 sectors, new drive size is 140000000 sectors
	
	Hashes with DCO in place:
	md5: E5F8B277A39ED0F49794E9916CD62DD9
	sha1.txt: AC64CF1B3736BB2FE40C14D871E6F207BC432C2F

Log Highlights:	Block Hashes 1 0 – 1048575: 6a260ac126350673890131de0c0010030b47a7dd 2 1048576 – 2097151: 8ab85f94166d7e92db407dad1f788fc704a42603 3 2097152 – 3145727: f17e10a7e0b6e1c6ec96392d69321ccc8e801acf . . . 68358 71677509632 – 71678558207: 1fd4acafc0663fb16bf4bcf90aceed832ed65526 68359 71678558208 – 71679606783: 1c7ce8f6222cde085a5ea4081a5ca9f401287723 68360 71679606784 – 71680000511: 4a722aaf536ca57f9cc72df83b65075a6bc90c99 Full Media Hashes 0 – 71680000511: ac64cf1b3736bb2fe40c14d871e6f207bc432c2f 140000001 sectors (71680000512 bytes) imaged Source SHA1 rehash: AC64CF1B3736BB2FE40C14D871E6F207BC432C2F Settings: imageSegmentSize full size hashWindow 1 MB diskArbitration Off Image file segments

Test Case DA-08-DCO MacForensicsLab 2.5.5	
	1 501 71680000512 Apr 1 11:37 da-08-dco.dmg
Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-07 All hidden sectors acquired.	dco not acquired
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	hash byte range incorrect
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.20   DA–08–SATA28

Test Case DA-08-SATA28 MacForensicsLab 2.5.5	
Case Summary:	DA-08 Acquire a physical drive with hidden sectors to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-07 All hidden sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Mon Mar 9 11:53:36 2009
Drives:	src(23-sata) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 7EC47699DE37A7DB70FBDF80CE69B24C9A8D43A9 > src hash (MD5): < A0CF255EF706D8E2048EA2B57AB0D6C4 > 156301488 total sectors (80026361856 bytes) Model (ST380013AS) serial # (5JVCYJCF) HPA created with 16301488 sectors, new drive size is 140000000 sectors Hashes with HPA in place md5: 95D719CC0B895B0FB3740770A9D4F894 sha1: EE5B26B34DEBF089EFF45EFCACBC125CF9C37F49
Log Highlights:	Full Media Hashes 0 - 71679541247: 9269046d0e9f7f9b3acdb523d51f1c999f827c13 139999104 sectors (71679541248 bytes) imaged Settings: imageSegmentSize full size diskArbitration On Write Block: 62 Diskology Disk Jockey PRO Forensic Image file segments 1 501 71679541248 Mar 9 13:22 da-08-sata28.dmg
Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	some sectors not acquired
AM-07 All hidden sectors acquired.	hpa not acquired
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Test Case DA-08-SATA28 MacForensicsLab 2.5.5	
Analysis:	Expected results not achieved

5.2.21　　DA–08–SATA28–ALT

Test Case DA-08-SATA28-ALT MacForensicsLab 2.5.5	
Case Summary:	DA-08 Acquire a physical drive with hidden sectors to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-07 All hidden sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Mon May 4 12:13:42 2009
Drives:	src(23-sata) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 7EC47699DE37A7DB70FBDF80CE69B24C9A8D43A9 > src hash (MD5): < A0CF255EF706D8E2048EA2B57AB0D6C4 > 156301488 total sectors (80026361856 bytes) Model (ST380013AS) serial # (5JVCYJCF) HPA created with 16301488 sectors, new drive size is 140000000 sectors Hashes with HPA in place md5: 95D719CC0B895B0FB3740770A9D4F894 sha1: EE5B26B34DEBF089EFF45EFCACBC125CF9C37F49
Log Highlights:	Full Media Hashes 0 - 71680000511: ee5b26b34debf089eff45efcacbc125cf9c37f49 140000001 sectors (71680000512 bytes) imaged Settings: imageSegmentSize full size diskArbitration On Write Block: 60 Forensic UltraDock v4 Image file segments 1 501 71680000512 May 4 13:25 da-08-sata28-alt.dmg
Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-07 All hidden sectors acquired.	hpa not acquired
AM-08 All sectors accurately acquired.	as expected
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Test Case DA-08-SATA28-ALT MacForensicsLab 2.5.5	
Analysis:	Expected results not achieved

5.2.22 DA–08–SATA48

Test Case DA-08-SATA48 MacForensicsLab 2.5.5	
Case Summary:	DA-08 Acquire a physical drive with hidden sectors to an image file.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-07 All hidden sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Wed Apr 1 12:01:33 2009
Drives:	src(1E-sata) dst (none) other (3A-SATA)
Source Setup:	src hash (SHA1): < 3E7439D9E99ACD030B969C1BE5B1430BF7183573 > src hash (MD5): < 8E1CF5E20E86362E0EACF12EDDEF42A6 > 625142448 total sectors (320072933376 bytes) 38912/254/63 (max cyl/hd values) 38913/255/63 (number of cyl/hd) Model (ST3320620AS) serial # (5QF3X4F6) HPA created with 65142448 sectors, new drive size is 560000000 sectors Hashes with HPA in place md5: 3655FA5086B6864154898533DFAE2442 sha1: EB1045B57DE7CDA28FE9504E3FA238D0B5DBC587
Log Highlights:	Full Media Hashes 0 - 286720000511: eb1045b57de7cda28fe9504e3fa238d0b5dbc587 560000001 sectors (286720000512 bytes) imaged Source SHA1 rehash: EB1045B57DE7CDA28FE9504E3FA238D0B5DBC587 Settings: imageSegmentSize full size diskArbitration Off Image file segments 1 501 286720000512 Apr 1 14:50 da-08-sata48.dmg

Results:	Assertion & Expected Result	Actual Result
	AM-01 Source acquired using interface AI.	as expected
	AM-02 Source is type DS.	as expected
	AM-03 Execution environment is XE.	as expected
	AM-05 An image is created on file system type FS.	as expected
	AM-06 All visible sectors acquired.	as expected
	AM-07 All hidden sectors acquired.	hpa not acquired
	AM-08 All sectors accurately acquired.	as expected
	AO-01 Image file is complete and accurate.	as expected
	AO-05 Multifile image created.	as expected
	AO-22 Tool calculates hashes by block.	option not tested
	AO-23 Logged information is correct.	as expected

Test Case DA-08-SATA48 MacForensicsLab 2.5.5		
	AO-24 Source is unchanged by acquisition.	not checked
Analysis:	Expected results not achieved	

5.2.23 DA–09–ALT

Test Case DA-09-ALT MacForensicsLab 2.5.5	
Case Summary:	DA-09 Acquire a digital source that has at least one faulty data sector.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AM-09 If unresolved errors occur while reading from the selected digital source, the tool notifies the user of the error type and location within the digital source. AM-10 If unresolved errors occur while reading from the selected digital source, the tool uses a benign fill in the destination object in place of the inaccessible data. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Manuelito
Test Date:	Fri Apr 3 13:22:39 2009
Drives:	src(ED-BAD-CPR4) dst (50-SATA) other (38-SATA)
Source Setup:	No before hash for ED-BAD-CPR4 Known Bad Sector List for ED-BAD-CPR4 Manufacturer: Maxtor Model: DiamondMax Plus 9 Serial Number: Y23EGSJE Capacity: 60GB Interface: SATA 35 faulty sectors 6160328, 6160362, 10041157, 10041995, 10118634, 10209448, 11256569, 14115689, 14778391, 14778392, 14778449, 14778479, 14778517, 14778518, 14778519, 14778520, 14778521, 14778551, 14778607, 14778626, 14778627, 14778650, 14778668, 14778669, 14778709, 14778727, 14778747, 14778772, 14778781, 14778870, 14778949, 14778953, 14779038, 14779113, 14779321
Log Highlights:	Destination setup 156301488 sectors wiped with 50 Comparision of original to clone Sectors compared: 120103200 Sectors match: 120065336 Sectors differ: 37864 Bytes differ: 19148844 Diffs range 6160328-6160383, 10041157-10043391, 10118634-10125311, 10209448-10215423, 11256569-11263999, 14115689-14123007, 14778391-14786559 Source (120103200) has 36198288 fewer sectors than destination (156301488) Zero fill: 0 Src Byte fill (ED): 0 Dst Byte fill (50): 36198288 Other fill: 0 Other no fill: 0

```
Test Case DA-09-ALT MacForensicsLab 2.5.5
                Zero fill range:
                Src fill range:
                Dst fill range: 120103200-156301487
                Other fill range:
                Other not filled range:
                0 source read errors, 0 destination read errors

                Full Media Hashes
                0 - 61492838399: c8f070390be0e611310be884aa2ea6f20b36dd60
                7 different run lengths observed in 7 runs
                1 runs of length 56
                1 runs of length 2235
                1 runs of length 5976
                1 runs of length 6678
                1 runs of length 7319
                1 runs of length 7431
                1 runs of length 8169
                37864 sectors differ
                 37456 zero filled and 408 varying non-zero filled
                  Identified Bad Sector Runs
                 Run Start   Run Length End
                 byte   Sector byte sector Sector
                3149922304 4194304 6152192 8192 6160384
                5138022400 4194304 10035200 8192 10043392
                5179965440 4194304 10117120 8192 10125312
                5226102784 4194304 10207232 8192 10215424
                5762973696 4194304 11255808 8192 11264000
                7226785792 4194304 14114816 8192 14123008
                7566524416 4194304 14778368 8192 14786560
                120103200 sectors (61492838400 bytes) imaged

                Settings:
                imageSegmentSize full size
                diskArbitration Off
                Write Block: 62 Diskology Disk Jockey PRO Forensic

                Image file segments
                  1      61492838400 Apr 3 09:54 da-09-alt.dmg
```

Results:

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	some sectors differ
AM-09 Error logged.	user error notification inconsistent
AM-10 Benign fill replaces inaccessible sectors.	non-benign fill
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis: Expected results not achieved

5.2.24 DA–09–INTEL

Test Case DA-09-INTEL MacForensicsLab 2.5.5	
Case Summary:	DA-09 Acquire a digital source that has at least one faulty data sector.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AM-09 If unresolved errors occur while reading from the selected digital source, the tool notifies the user of the error type and location within the digital source. AM-10 If unresolved errors occur while reading from the selected digital source, the tool uses a benign fill in the destination object in place of the inaccessible data. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Thu Apr 2 14:52:42 2009
Drives:	src(ED-BAD-CPR4) dst (4D-SATA) other (3A-SATA)
Source Setup:	No before hash for ED-BAD-CPR4 Known Bad Sector List for ED-BAD-CPR4 Manufacturer: Maxtor Model: DiamondMax Plus 9 Serial Number: Y23EGSJE Capacity: 60GB Interface: SATA 35 faulty sectors 6160328, 6160362, 10041157, 10041995, 10118634, 10209448, 11256569, 14115689, 14778391, 14778392, 14778449, 14778479, 14778517, 14778518, 14778519, 14778520, 14778521, 14778551, 14778607, 14778626, 14778627, 14778650, 14778668, 14778669, 14778709, 14778727, 14778747, 14778772, 14778781, 14778870, 14778949, 14778953, 14779038, 14779113, 14779321
Log Highlights:	Destination setup 156301488 sectors wiped with 4D Comparision of original to clone Sectors compared: 120103200 Sectors match: 120065336 Sectors differ: 37864 Bytes differ: 15646920 Diffs range 6160328-6160383, 10041157-10043391, 10118634-10125311, 10209448-10215423, 11256569-11263999, 14115689-14123007, 14778391-14786559 Source (120103200) has 36198288 fewer sectors than destination (156301488) Zero fill: 0 Src Byte fill (ED): 0 Dst Byte fill (4D): 36198288 Other fill: 0 Other no fill: 0

Test Case DA-09-INTEL MacForensicsLab 2.5.5

```
Zero fill range:
Src fill range:
Dst fill range: 120103200-156301487
Other fill range:
Other not filled range:
0 source read errors, 0 destination read errors

Full Media Hashes
0 - 61492838399: 113917e63b96ceafc8bf64de2265f7b2af176eca
7 different run lengths observed in 7 runs
1 runs of length 56
1 runs of length 2235
1 runs of length 5976
1 runs of length 6678
1 runs of length 7319
1 runs of length 7431
1 runs of length 8169
37864 sectors differ
 30432 zero filled and 7432 varying non-zero filled
  Identified Bad Sector Runs
 Run Start   Run Length End
 byte  Sector byte sector Sector
3149922304 4194304 6152192 8192 6160384
5138022400 4194304 10035200 8192 10043392
5179965440 4194304 10117120 8192 10125312
5226102784 4194304 10207232 8192 10215424
5762973696 4194304 11255808 8192 11264000
7226785792 4194304 14114816 8192 14123008
7566524416 4194304 14778368 8192 14786560
120103200 sectors (61492838400 bytes) imaged

Settings:
imageSegmentSize full size
diskArbitration Off

Image file segments
   1     501 61492838400 Apr 2 15:31 da-09-intel.dmg
```

Results:	

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	some sectors differ
AM-09 Error logged.	user error notification inconsistent
AM-10 Benign fill replaces inaccessible sectors.	non-benign fill
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.25 DA–09–PPC

Test Case DA-09-PPC MacForensicsLab 2.5.5	
Case Summary:	DA-09 Acquire a digital source that has at least one faulty data sector.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AM-06 All visible sectors are acquired from the digital source. AM-08 All sectors acquired from the digital source are acquired accurately. AM-09 If unresolved errors occur while reading from the selected digital source, the tool notifies the user of the error type and location within the digital source. AM-10 If unresolved errors occur while reading from the selected digital source, the tool uses a benign fill in the destination object in place of the inaccessible data. AO-01 If the tool creates an image file, the data represented by the image file is the same as the data acquired by the tool. AO-05 If the tool creates a multi-file image of a requested size then all the individual files shall be no larger than the requested size. AO-22 If requested, the tool calculates block hashes for a specified block size during an acquisition for each block acquired from the digital source. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	Richelieu
Test Date:	Tue Apr 7 15:24:04 2009
Drives:	src(ED-BAD-CPR4) dst (25-SATA) other (52-SATA)
Source Setup:	No before hash for ED-BAD-CPR4 Known Bad Sector List for ED-BAD-CPR4 Manufacturer: Maxtor Model: DiamondMax Plus 9 Serial Number: Y23EGSJE Capacity: 60GB Interface: SATA 35 faulty sectors 6160328, 6160362, 10041157, 10041995, 10118634, 10209448, 11256569, 14115689, 14778391, 14778392, 14778449, 14778479, 14778517, 14778518, 14778519, 14778520, 14778521, 14778551, 14778607, 14778626, 14778627, 14778650, 14778668, 14778669, 14778709, 14778727, 14778747, 14778772, 14778781, 14778870, 14778949, 14778953, 14779038, 14779113, 14779321
Log Highlights:	Destination setup 156301488 sectors wiped with 25 Comparision of original to clone Sectors compared: 120103200 Sectors match: 120100872 Sectors differ: 2328 Bytes differ: 927607 Diffs range 6160328-6160383, 10041157-10041343, 10041995-10042367, 10118634-10118655, 10209448-10209791, 11256569-11256831, 14115689-14115839, 14778391-14778879, 14778949-14779391 Source (120103200) has 36198288 fewer sectors than destination (156301488) Zero fill: 0 Src Byte fill (ED): 0 Dst Byte fill (25): 36198288 Other fill: 0 Other no fill: 0

```
Test Case DA-09-PPC MacForensicsLab 2.5.5
            Zero fill range:
            Src fill range:
            Dst fill range: 120103200-156301487
            Other fill range:
            Other not filled range:
            0 source read errors, 0 destination read errors

            Full Media Hashes
            0 - 61492838399: f2eff7246108f18e7f17954fd102570c61e65d4a
            9 different run lengths observed in 9 runs
            1 runs of length 22
            1 runs of length 56
            1 runs of length 151
            1 runs of length 187
            1 runs of length 263
            1 runs of length 344
            1 runs of length 373
            1 runs of length 443
            1 runs of length 489
            2328 sectors differ
             1792 zero filled and 536 varying non-zero filled
              Identified Bad Sector Runs
             Run Start    Run Length End
             byte   Sector byte sector Sector
            3153854464 262144 6159872 512 6160384
            5140905984 262144 10040832 512 10041344
            5141430272 262144 10041856 512 10042368
            5180489728 262144 10118144 512 10118656
            5227151360 262144 10209280 512 10209792
            5763235840 262144 11256320 512 11256832
            7227047936 262144 14115328 512 14115840
            7566524416 262144 14778368 512 14778880
            7566786560 262144 14778880 512 14779392
            120103200 sectors (61492838400 bytes) imaged

            Settings:
            imageSegmentSize full size
            hashWindow 256 Kb
            diskArbitration Off
            Write Block: 38 WiebeTech Forensic SATADock v4

            Image file segments
              1     61492838400 Apr 7 16:39 da-09-ppc.dmg
```

Results:		

Assertion & Expected Result	Actual Result
AM-01 Source acquired using interface AI.	as expected
AM-02 Source is type DS.	as expected
AM-03 Execution environment is XE.	as expected
AM-05 An image is created on file system type FS.	as expected
AM-06 All visible sectors acquired.	as expected
AM-08 All sectors accurately acquired.	some sectors differ
AM-09 Error logged.	user error notification inconsistent
AM-10 Benign fill replaces inaccessible sectors.	non-benign fill
AO-01 Image file is complete and accurate.	as expected
AO-05 Multifile image created.	as expected
AO-22 Tool calculates hashes by block.	option not tested
AO-23 Logged information is correct.	as expected
AO-24 Source is unchanged by acquisition.	not checked

Analysis:	Expected results not achieved

5.2.26   DA–12

Test Case DA-12 MacForensicsLab 2.5.5	
Case Summary:	DA-12 Attempt to create an image file where there is insufficient space.
Assertions:	AM-01 The tool uses access interface SRC-AI to access the digital source. AM-02 The tool acquires digital source DS. AM-03 The tool executes in execution environment XE. AM-05 If image file creation is specified, the tool creates an image file on file system type FS. AO-04 If the tool is creating an image file and there is insufficient space on the image destination device to contain the image file, the tool shall notify the user. AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.
Tester Name:	Brl
Test Host:	D'Artagnan
Test Date:	Mon Apr 6 11:29:45 2009
Drives:	src(01-sata) dst (none) other (24-SATA)
Source Setup:	src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C > src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 > 156301488 total sectors (80026361856 bytes) Model (0JD-32HKA0) serial # (WD-WMAJ91448529)
Log Highlights:	Source SHA1 rehash: 4951236428C36B944E62E8D65862DCBEF05F282C Settings: imageSegmentSize full size diskArbitration Off MacForensicsLab Insufficient space on this volume. OK
Results:		Assertion & Expected Result	Actual Result | |---|---| | AM-01 Source acquired using interface AI. | as expected | | AM-02 Source is type DS. | as expected | | AM-03 Execution environment is XE. | as expected | | AM-05 An image is created on file system type FS. | as expected | | AO-04 User notified if space exhausted. | as expected | | AO-23 Logged information is correct. | as expected | | AO-24 Source is unchanged by acquisition. | as expected |
Analysis:	Expected results achieved

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A component of the Office of Justice Programs, NIJ is the research, development and evaluation agency of the U.S. Department of Justice. NIJ's mission is to advance scientific research, development and evaluation to enhance the administration of justice and public safety. NIJ's principal authorities are derived from the Omnibus Crime Control and Safe Streets Act of 1968, as amended (see 42 U.S.C. §§ 3721–3723).

The NIJ Director is appointed by the President and confirmed by the Senate. The Director establishes the Institute's objectives, guided by the priorities of the Office of Justice Programs, the U.S. Department of Justice, and the needs of the field. The Institute actively solicits the views of criminal justice and other professionals and researchers to inform its search for the knowledge and tools to guide policy and practice.

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NIJ has seven strategic goals grouped into three categories:

Creating relevant knowledge and tools

1. Partner with state and local practitioners and policymakers to identify social science research and technology needs.
2. Create scientific, relevant, and reliable knowledge—with a particular emphasis on terrorism, violent crime, drugs and crime, cost-effectiveness, and community-based efforts—to enhance the administration of justice and public safety.
3. Develop affordable and effective tools and technologies to enhance the administration of justice and public safety.

Dissemination

4. Disseminate relevant knowledge and information to practitioners and policymakers in an understandable, timely and concise manner.
5. Act as an honest broker to identify the information, tools and technologies that respond to the needs of stakeholders.

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6. Practice fairness and openness in the research and development process.
7. Ensure professionalism, excellence, accountability, cost-effectiveness and integrity in the management and conduct of NIJ activities and programs.

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