

Test Results for Digital Data Acquisition Tool

Tool Tested: HardCopy II
Version: 1-10
Run Environments: n/a (HardCopyII is a hardware device)
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Results Summary

The tested tool acquired all visible and hidden sectors completely and accurately from the test media without any anomalies. In the one case (DA-09) testing a hard read error, the test was interrupted as the test disk was almost entirely bad.

Test Case Selection

Test cases are selected by comparing tool features to the assertions defined in Digital Data Acquisition Tool Assertions and Test Plan Version 1.0 (www.cftt.nist.gov/DA-ATP-pc-01.pdf). The list of tool assertions follows.

Assertions for Required Features

- DA-AM-01** The tool uses access interface SRC-AI to access the digital source.
- DA-AM-02** The tool acquires digital source DS.
- DA-AM-03** The tool executes in execution environment XE.
- DA-AM-04** If image file creation is specified, the tool creates an image file on filesystem type FS.
- DA-AM-06** All visible sectors are acquired from the digital source.
- DA-AM-07** All hidden sectors are acquired from the digital source.
- DA-AM-08** All sectors acquired from the digital source are acquired accurately.
- DA-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.
- DA-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.

Assertions for Optional Features

Assertions for Image Files

- DA-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.
- DA-AO-02** If an image file format is specified, the tool creates an image file in the specified format.

- DA-AO-03** If there is an error while writing the image file, the tool notifies the user.
- DA-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.
- DA-AO-05** If the tool creates a multi-file image of a requested size then all the individual files shall be of the requested size, except that one file may be smaller.
- DA-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.
- DA-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.
- DA-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.
- DA-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.
- DA-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.

Assertions for Clone Creation

- DA-AO-11** If requested, a clone is created during an acquisition of a digital source.
- DA-AO-12** If requested, a clone is created from an image file.
- DA-AO-13** A clone is created using access interface DST-AI to write to the clone device.
- DA-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.
- DA-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.
- DA-AO-16** If a subset of an image or acquisition is specified, all the subset is cloned.
- DA-AO-17** If requested, any excess sectors on a clone destination device are not modified.
- DA-AO-18** If requested, a benign fill is written to excess sectors of a clone.
- DA-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.
- DA-AO-20** If a truncated clone is created, the tool notifies the user.
- DA-AO-21** If there is a write error during clone creation, the tool notifies the user.

Assertion for Tools Offering Block Hash Logging

- DA-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.

Assertion for Tools Creating a Log File

DA-AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.

Assertion for Tools Offering Acquisition Without Requiring Write Protection of the Digital Source

DA-AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.

HardCopyII images or clones entire physical devices. It cannot select a single partition, so test cases involving logical sources have been skipped. Also, HardCopyII does not support all of the optional assertions. The most notable unsupported features are image file re-verification or manipulation or the creation of a truncated clone/image. Therefore, not all optional assertions are tested. Untested assertions: AO-05, AO-06, AO-07, AO-08, AO-09, AO-10, AO-12, AO-15, AO-16, AO-19, AO-20, AO-22, AO-24.

Selected Test Cases

| Supported Assertions | Cases Selected For Execution |
|--------------------------|--|
| All mandatory assertions | DA-01, DA-04, DA-05, DA-06, DA-07, DA-08, DA-09, DA-10, DA-11, DA-12, DA-19 |
| AO-01 | DA-06, DA-07, DA-08, DA-09 |
| AO-02 | DA-10 |
| AO-03 | DA-11 (not executed due to unavailability of error generation) |
| AO-04 | DA-12 |
| AO-05 | DA-06, DA-07, DA-08, DA-09, DA-10 |
| AO-11 | DA-01, DA-04, DA-19 |
| AO-13 | DA-01, DA-04, DA-19 |
| AO-14 | DA-01, DA-04, DA-19 |
| AO-17 | DA-01 |
| AO-18 | DA-19 |
| AO-21 | DA-05 (not executed due to unavailability of error generation) |
| AO-23 | DA-06, DA-07, DA-08, DA-09, DA-10 (HardCopyII only creates a file during image creation. All other output must be captured using HardCopyII's built in serial port via the logging function of the terminal program in use. CuteCom 0.14.0 was used for these tests.) |

Some test cases have variant forms to accommodate parameters within test assertions. These variations cover the execution environment, acquisition interface to the source drive, and type of digital object acquired. Variations were also created for image file format.

The following source interfaces were tested: ATA28, ATA48.

The following digital sources were tested: FAT32, FAT32X, and NTFS.

The image files were created on either NTFS or FAT32 partitions.

Testing Environment

The tests were run in the Voom Technologies lab.

Test Computers

Host **nistor** has the following configuration:

Foxconn 865A01-PE-6LS Motherboard

Phoenix AwardBIOS v6.00PG

Intel Pentium 4 CPU 2.66Ghz

Physical RAM: 1036664k, Swap: 2433808k

All optical drives were disconnected during testing.

Primary and Secondary Parallel ATA hard disk controllers.

Two SATA hard disk controllers.

Host **nistor** is running Debian Linux 4.0, kernel version 2.6.18-6-686.

Test Drives

All hard drives had their parameters recorded by '`hdparm -I /dev/hdX`' where X is one of a, b, c, or d. The significant identifiers are listed below.

| Label | Model | Serial # | 48bit | Native LBA | Size |
|-------|--------------------------|--------------|-------|------------|-----------|
| s3 | FUJITSU MPB3032AT-CL | 01016225 | no | 6336288 | 3093 MB |
| d3 | FUJITSU MPB3032AT-CL | 01027894 | no | 6336288 | 3093 MB |
| s20 | SEAGATE ST320011A | 3HT0KJYK | no | 39102336 | 19092 MB |
| d20 | QUANTUM FIREBALLP AS20.5 | 692126573011 | no | 40132503 | 19595 MB |
| s40 | SEAGATE ST340014A | 5JXL8MSH | yes | 78165360 | 38166 MB |
| s80 | SEAGATE ST3802110A | 5LR6W869 | yes | 156301488 | 76319 MB |
| s120 | SEAGATE ST3120022A | 5JT0H6AN | yes | 234441648 | 114473 MB |
| d120 | SEAGATE ST3120022A | 5JT12AC1 | yes | 234441648 | 114473 MB |
| dco | SEAGATE ST340014A | 3JX848NV | yes | 78165360 | 38166 MB |

There is one additional hard drive where LBA 3056141 is known to produce a read error which was only attached to the HardCopyII. It was not attached to host **nistor** to prevent the OS from repairing the disk. This hard drive is a Seagate 3802110A, SN: 5LR0G4ZC, and is labeled 'bad'.

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>.

| | | |
|-----------------|---|---------------|
| Case Identifier | DA-01-ATA28 | |
| | AO-23 Logged information is correct. | not supported |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |

| | | |
|----------------------|--|-------------|
| Case Identifier | DA-01-ATA28d | |
| Case Summary | Acquire a physical device using access interface AI to an unaligned clone. | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-04 DA-AM-06 DA-AM-08 DA-AO-11 DA-AO-13 DA-AO-14 DA-AO-17 DA-AO-22 DA-AO-23 DA-AO-24 | |
| Test Date | Mon Jun 30 08:30:20 2008 | |
| Drives | src: s20 dst: d20 | |
| Setup | src: IDE disk: Model (ST320011A) serial # (3HT0KJYK) 39102336 sectors wiped with 28000000 hash SHA-1: e73d92ca06caa27e44f60c8944e8adb2f5a0bec9 dst: IDE disk: Model (QUANTUM FIREBALLP AS20.5) serial # (692126573011) 40132503 sectors wiped with FFFFFFFF3 | |
| Highlights | diskcmp: Sectors compared: 39102336 Sectors match: 39102336 Sectors differ: 0 Bytes differ: 0 Diffs range Source (39102336) has 1030167 fewer sectors than destination (40132503) Zero fill: 0 Src Byte fill (00): 0 Dst Fill Byte same as Src Fill Byte Other fill (F3): 1030167 Other no fill: 0 Zero fill range: Src fill range: Dst fill range: Other fill range: 39102336-40132502 Other not filled range: 0 source read errors, 0 destination read errors shalsum (src, post clone): e73d92ca06caa27e44f60c8944e8adb2f5a0bec9 shalsum (dst): e73d92ca06caa27e44f60c8944e8adb2f5a0bec9 | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-04 A clone is created. | as expected |
| | AM-06 All visible sectors acquired. | as expected |
| | AM-08 All sectors accurately acquired. | as expected |
| | AO-11 A clone is created during acquisition. | as expected |

| | | |
|-----------------|---|---------------|
| Case Identifier | DA-01-ATA28d | |
| | AO-13 Clone created using interface AI. | as expected |
| | AO-14 An unaligned clone is created. | as expected |
| | AO-17 Excess sectors are unchanged. | as expected |
| | AO-22 Tool calculates hashes by block. | not supported |
| | AO-23 Logged information is correct. | not supported |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |

| | | |
|----------------------|--|---------------|
| Case Identifier | DA-01-ATA48 | |
| Case Summary | Acquire a physical device using access interface AI to an unaligned clone. | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-04 DA-AM-06 DA-AM-08 DA-AO-11 DA-AO-13 DA-AO-14 DA-AO-17 DA-AO-22 DA-AO-23 DA-AO-24 | |
| Test Date | Mon Jun 23 10:42:40 2008 | |
| Drives | src: s120 dst: d120 | |
| Setup | src: IDE disk: Model (ST3120022A) serial # (5JT0H6AN) 234441648 sectors wiped with 28000000 hash SHA-1: 5c18bde6907375209ee762adda8b4b93f59660cd dst: IDE disk: Model (ST3120022A) serial # (5JT12AC1) 234441648 sectors wiped with FFFFFFFF3 | |
| Highlights | diskcmp: Sectors compared: 234441648 Sectors match: 234441648 Sectors differ: 0 Bytes differ: 0 Diffs range 0 source read errors, 0 destination read errors shalsum (src, post clone): 5c18bde6907375209ee762adda8b4b93f59660cd shalsum (dst): 5c18bde6907375209ee762adda8b4b93f59660cd | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-04 A clone is created. | as expected |
| | AM-06 All visible sectors acquired. | as expected |
| | AM-08 All sectors accurately acquired. | as expected |
| | AO-11 A clone is created during acquisition. | as expected |
| | AO-13 Clone created using interface AI. | as expected |
| | AO-14 An unaligned clone is created. | as expected |
| | AO-17 Excess sectors are unchanged. | as expected |
| | AO-22 Tool calculates hashes by block. | not supported |
| | AO-23 Logged information is correct. | not supported |
| | AO-24 Source is unchanged by acquisition. | as expected |

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|-----------------|-------------------------------------|
| Case Identifier | DA-01-ATA48 |
| Analysis | The expected results were achieved. |

| | | |
|----------------------|---|-------------|
| Case Identifier | DA-01-ATA48d | |
| Case Summary | Acquire a physical device using access interface AI to an unaligned clone. | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-04 DA-AM-06 DA-AM-08 DA-AO-11 DA-AO-13 DA-AO-14 DA-AO-17 DA-AO-22 DA-AO-23 DA-AO-24 | |
| Test Date | Mon Jun 30 11:15:39 2008 | |
| Drives | src: s40 dst: d120 | |
| Setup | src: IDE disk: Model (ST340014A) serial # (5JXL8MSH) 78165360 sectors wiped with 28000000 hash SHA-1: 84e8eac65b96d0cf87b3b4738323f495a3baff40 dst: IDE disk: Model (ST3120022A) serial # (5JT12AC1) 234441648 sectors wiped with FFFFFFFF3 | |
| Highlights | diskcmp: Sectors compared: 78165360 Sectors match: 78165360 Sectors differ: 0 Bytes differ: 0 Diffs range Source (78165360) has 156276288 fewer sectors than destination (234441648) Zero fill: 0 Src Byte fill (00): 0 Dst Fill Byte same as Src Fill Byte Other fill (F3): 156276288 Other no fill: 0 Zero fill range: Src fill range: Dst fill range: Other fill range: 78165360-234441647 Other not filled range: 0 source read errors, 0 destination read errors shalsum (src, post clone): 84e8eac65b96d0cf87b3b4738323f495a3baff40 shalsum (dst): 84e8eac65b96d0cf87b3b4738323f495a3baff40 | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-04 A clone is created. | as expected |
| | AM-06 All visible sectors acquired. | as expected |
| | AM-08 All sectors accurately acquired. | as expected |

| | | |
|-----------------|--|---------------|
| Case Identifier | DA-01-ATA48d | |
| | AO-11 A clone is created during acquisition. | as expected |
| | AO-13 Clone created using interface AI. | as expected |
| | AO-14 An unaligned clone is created. | as expected |
| | AO-17 Excess sectors are unchanged. | as expected |
| | AO-22 Tool calculates hashes by block. | not supported |
| | AO-23 Logged information is correct. | not supported |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |

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|----------------------|--|----------|----------|----------|---------------|----------|
| Case Identifier | DA-04 | | | | | |
| Case Summary | Acquire a physical device to a truncated clone. | | | | | |
| Assertions | DA-AM-01 | DA-AM-02 | DA-AM-03 | DA-AM-04 | DA-AM-06 | DA-AM-08 |
| | DA-AO-11 | DA-AO-13 | DA-AO-14 | DA-AO-19 | DA-AO-20 | DA-AO-22 |
| | DA-AO-23 | DA-AO-24 | | | | |
| Test Date | Mon Jul 7 12:03:00 2008 | | | | | |
| Drives | src: s40 dst: d20 | | | | | |
| Setup | No special setup was performed. | | | | | |
| Highlights | HardCopyII: => clone Suspect: ST340014A 40.0GB Destination: QUANTUM FIREBALLP AS20.5 20.5GB Cloning Drive OK (y/n)? y not enough capacity for clone | | | | | |
| Results by Assertion | AM-01 Source acquired using interface AI. | | | | as expected | |
| | AM-02 Source is type DS. | | | | as expected | |
| | AM-03 Execution environment is XE. | | | | n/a | |
| | AM-04 A clone is created. | | | | not created | |
| | AM-06 All visible sectors acquired. | | | | not created | |
| | AM-08 All sectors accurately acquired. | | | | not created | |
| | AO-11 A clone is created during acquisition. | | | | not created | |
| | AO-13 Clone created using interface AI. | | | | not created | |
| | AO-14 An unaligned clone is created. | | | | not created | |
| | AO-19 Truncated clone is created. | | | | not created | |
| | AO-20 User notified that clone is truncated. | | | | not created | |
| | AO-22 Tool calculates hashes by block. | | | | not supported | |
| | AO-23 Logged information is correct. | | | | not supported | |
| | AO-24 Source is unchanged by acquisition. | | | | as expected | |
| Analysis | HardCopyII does not try to clone a source device if the destination device is not large enough to hold the entire source. | | | | | |

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|-----------------|--|
| Case Identifier | DA-06-ATA28 |
| Case Summary | Acquire a physical device using access interface AI to an image file. |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AM-06 DA-AM-08 DA-AO-01 DA-AO-05 DA-AO-22 DA-AO-23 DA-AO-24 |
| Test Date | Mon Jun 30 11:15:39 2008 |
| Drives | src: s3 dst: d20 |
| Setup | src: IDE disk: Model (FUJITSU MPB3032AT-CL) serial # (01016225) 6336288 sectors wiped with 28000000 hash SHA-1: 56caf7b7c448edcdc64e483d8f8037ca6baca4c6 |
| Highlights | <p>HardCopyII: => image Suspect: FUJITSU MPB3032AT-CL 3.2GB Destination: QUANTUM FIREBALLP AS20.5 20.5GB Imaging Drive OK (y/n)? y</p> <p>Title (80 characters): > DA-06-ATA28</p> <p>Copying 6336288 sectors from Suspect drive to Destination drive 00:00:10, 203776 sectors, 10.4MB/sec (625.5MB/min average) . . . 00:06:29, 6336288 sectors, 5.9MB/sec (499.2MB/min average) Updating File System [DIR : DATA001] Updating File System [DIR : DATA001 hdr] Operation Complete (00:06:29, 3.2GB) => checksum S Suspect: FUJITSU MPB3032AT-CL 3.2GB Summing Drive OK (y/n)? y</p> <p>Calculating MD5 hash for 6336288 sectors on Suspect drive 00:00:10, 147712 sectors, 10.5MB/sec (453.2MB/min average) . . . 00:06:32, 6336288 sectors, 6.0MB/sec (495.9MB/min average) MD5: 4d304ba7bc187c444b634e5eb94109d7 Operation Complete (00:06:32, 3.2GB)</p> <p>data001.hdr (created by HardCopyII): [Title] text=DA-06-ATA28</p> <p>[Geometry] ModelNumber=FUJITSU MPB3032AT-CL SerialNumber= 01016225 MaximumLBA=6336288</p> <p>[Capture] Retries=0 ReadErrors=0</p> |

| | | |
|----------------------|--|---------------|
| Case Identifier | DA-06-ATA28 | |
| | WriteErrors=0 MaximumLBA=6336288 Status=complete [FAT32 CRCs] FILE.000=d91dc303 FILE.001=4a3a2e4e shalsum (src, post image): 56caf7b7c448edcdc64e483d8f8037ca6baca4c6 shalsum (image): 56caf7b7c448edcdc64e483d8f8037ca6baca4c6 md5sum (image): 4d304ba7bc187c444b634e5eb94109d7 | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-05 An image file 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. | not supported |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |

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|-----------------|---|
| Case Identifier | DA-06-ATA48 |
| Case Summary | Acquire a physical device using access interface AI to an image file. |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AM-06 DA-AM-08 DA-AO-01 DA-AO-05 DA-AO-22 DA-AO-23 DA-AO-24 |
| Test Date | Mon Jul 07 14:03:34 2008 |
| Drives | src: s40 dst: d120 |
| Setup | src: IDE disk: Model (ST340014A) serial # (5JXL8MSH) hash SHA-1: b7ff1efef645b93b46dc873162e5134e64fe9639 |
| Highlights | <p>HardCopyII: => image Suspect: ST340014A 40.0GB Destination: ST3120022A 120.0GB Imaging Drive OK (y/n)? y</p> <p>Title (80 characters): > DA-06-ATA48</p> <p>Copying 78165360 sectors from Suspect drive to Destination drive 00:00:10, 999936 sectors, 52.6MB/sec (3.0GB/min average) . . . 00:14:53, 78165360 sectors, 34.0MB/sec (2.6GB/min average) Updating File System [file: data002.bin] Updating File System [file: data002.hdr] Operation Complete (00:14:53, 40.0GB) => checksum S Suspect: ST340014A 40.0GB Summing Drive OK (y/n)? y</p> <p>Calculating MD5 hash for 78165360 sectors on Suspect drive 00:00:15, 967680 sectors, 48.3MB/sec (1.9GB/min average) . . . 00:15:18, 78165360 sectors, 34.1MB/sec (2.6GB/min average) MD5: 1c76d155455e68327e7a39e7d76eae57 Operation Complete (00:15:18, 40.0GB)</p> <p>data002.hdr (created by HardCopyII): [Title] text=DA-06-ATA48</p> <p>[Geometry] ModelNumber=ST340014A SerialNumber=5JXL8MSH MaximumLBA=78165360</p> <p>[Capture] Retries=0 ReadErrors=0 WriteErrors=0</p> |

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|--|---|--|---|-------------|--------------------------|-------------|------------------------------------|-----|--|-------------|-------------------------------------|-------------|--|-------------|--|-------------|--------------------------------|-------------|--|---------------|--------------------------------------|-------------|---|-------------|
| Case Identifier | DA-06-ATA48 | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>MaximumLBA=78165360 Status=complete</p> <p>[NTFS CRCs] 00000000-004079ff=25ba1634 00407a00-008075ff=cf1fa5bd 00807600-00c071ff=cf1fa5bd 00c07200-01006dff=cf1fa5bd 01006e00-014069ff=cf1fa5bd 01406a00-018065ff=cf1fa5bd 01806600-01c061ff=cf1fa5bd 01c06200-02005dff=cf1fa5bd 02005e00-024059ff=cf1fa5bd 02405a00-0280177f=69906198 02801780-02c0137f=cf1fa5bd 02c01380-03000f7f=cf1fa5bd 03000f80-03400b7f=cf1fa5bd 03400b80-0380077f=cf1fa5bd 03800780-03c0037f=cf1fa5bd 03c00380-04007d7f=25ba1634 04007d80-0440797f=cf1fa5bd 04407980-0480757f=cf1fa5bd 04807580-04a8b56f=b8f68129</p> <p>shalsum (src, post image): b7ff1efef645b93b46dc873162e5134e64fe9639</p> <p>shalsum (image): b7ff1efef645b93b46dc873162e5134e64fe9639</p> <p>md5sum (image): 1c76d155455e68327e7a39e7d76eae57</p> | | | | | | | | | | | | | | | | | | | | | | | |
| Results by Assertion | <table border="1"> <tr> <td data-bbox="342 1234 1230 1285">AM-01 Source acquired using interface AI.</td> <td data-bbox="1230 1234 1508 1285">as expected</td> </tr> <tr> <td data-bbox="342 1285 1230 1335">AM-02 Source is type DS.</td> <td data-bbox="1230 1285 1508 1335">as expected</td> </tr> <tr> <td data-bbox="342 1335 1230 1386">AM-03 Execution environment is XE.</td> <td data-bbox="1230 1335 1508 1386">n/a</td> </tr> <tr> <td data-bbox="342 1386 1230 1436">AM-05 An image file is created on file system type FS.</td> <td data-bbox="1230 1386 1508 1436">as expected</td> </tr> <tr> <td data-bbox="342 1436 1230 1486">AM-06 All visible sectors acquired.</td> <td data-bbox="1230 1436 1508 1486">as expected</td> </tr> <tr> <td data-bbox="342 1486 1230 1537">AM-08 All sectors accurately acquired.</td> <td data-bbox="1230 1486 1508 1537">as expected</td> </tr> <tr> <td data-bbox="342 1537 1230 1587">AO-01 Image file is complete and accurate.</td> <td data-bbox="1230 1537 1508 1587">as expected</td> </tr> <tr> <td data-bbox="342 1587 1230 1638">AO-05 Multifile image created.</td> <td data-bbox="1230 1587 1508 1638">as expected</td> </tr> <tr> <td data-bbox="342 1638 1230 1688">AO-22 Tool calculates hashes by block.</td> <td data-bbox="1230 1638 1508 1688">not supported</td> </tr> <tr> <td data-bbox="342 1688 1230 1738">AO-23 Logged information is correct.</td> <td data-bbox="1230 1688 1508 1738">as expected</td> </tr> <tr> <td data-bbox="342 1738 1230 1780">AO-24 Source is unchanged by acquisition.</td> <td data-bbox="1230 1738 1508 1780">as expected</td> </tr> </table> | | AM-01 Source acquired using interface AI. | as expected | AM-02 Source is type DS. | as expected | AM-03 Execution environment is XE. | n/a | AM-05 An image file 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. | not supported | AO-23 Logged information is correct. | as expected | AO-24 Source is unchanged by acquisition. | as expected |
| AM-01 Source acquired using interface AI. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AM-02 Source is type DS. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AM-03 Execution environment is XE. | n/a | | | | | | | | | | | | | | | | | | | | | | | |
| AM-05 An image file 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. | not supported | | | | | | | | | | | | | | | | | | | | | | | |
| AO-23 Logged information is correct. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AO-24 Source is unchanged by acquisition. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| Analysis | The expected results were achieved. | | | | | | | | | | | | | | | | | | | | | | | |

| Case Identifier | DA-07-F32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|-----------|-------------|-------------|-------------|----------------|------|----------------|---|-------------|-----------|-------------|-------------|----|-------|---|-------------|-----------|-------------|-------------|----|----------|---|-------------|-----------|-------------|-------------|----|-------|---|-------------|-----------|-------------|-------------|----|----------|---|-------------|-----------|-------------|-------------|----|-------|---|-------------|-----------|-------------|-------------|----|----------|---|-------------|-----------|-------------|-------------|----|-------|---|-------------|-----------|-------------|-------------|----|----------|---|-------------|-----------|-------------|-------------|----|-------|----|-------------|-----------|-------------|-------------|----|----------|----|-------------|-----------|-------------|-------------|----|------------|
| Case Summary | Acquire a digital source of type DS to an image file. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AM-06 DA-AM-08 DA-AO-01 DA-AO-05 DA-AO-22 DA-AO-23 DA-AO-24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Date | Thu Aug 7 10:11:25 2008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drives | src: s80 dst: s120 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Setup | <p>src: IDE disk: Model (ST3802110A) serial # (5LR6W869) 156301488 sectors wiped with B7E7727C</p> <table border="1"> <thead> <tr> <th>N</th> <th>Start LBA</th> <th>Length</th> <th>Start C/H/S</th> <th>End C/H/S</th> <th>boot</th> <th>Partition type</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>P 000000063</td> <td>061432497</td> <td>0000/001/01</td> <td>1023/254/63</td> <td>0B</td> <td>Fat32</td> </tr> <tr> <td>2</td> <td>X 061432560</td> <td>094863825</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>05</td> <td>extended</td> </tr> <tr> <td>3</td> <td>S 000000063</td> <td>020482812</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>0B</td> <td>Fat32</td> </tr> <tr> <td>4</td> <td>x 020482875</td> <td>008369865</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>05</td> <td>extended</td> </tr> <tr> <td>5</td> <td>S 000000063</td> <td>008369802</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>16</td> <td>other</td> </tr> <tr> <td>6</td> <td>x 028852740</td> <td>032772600</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>05</td> <td>extended</td> </tr> <tr> <td>7</td> <td>S 000000063</td> <td>032772537</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>8</td> <td>x 061625340</td> <td>028676025</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>05</td> <td>extended</td> </tr> <tr> <td>9</td> <td>S 000000063</td> <td>028675962</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>83</td> <td>Linux</td> </tr> <tr> <td>10</td> <td>x 090301365</td> <td>004562460</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>05</td> <td>extended</td> </tr> <tr> <td>11</td> <td>S 000000063</td> <td>004562397</td> <td>1023/254/63</td> <td>1023/254/63</td> <td>82</td> <td>Linux swap</td> </tr> </tbody> </table> <p>P primary partition (1-4) S secondary (sub) partition X primary extended partition (1-4) x secondary extended partition</p> <p>hash SHA-1: 3164fdb4f6d7e455dcfe597477a6e5a90446a770 hash MD-5: 1a6747a6170b9bb347eeaa2678273ab3</p> | N | Start LBA | Length | Start C/H/S | End C/H/S | boot | Partition type | 1 | P 000000063 | 061432497 | 0000/001/01 | 1023/254/63 | 0B | Fat32 | 2 | X 061432560 | 094863825 | 1023/254/63 | 1023/254/63 | 05 | extended | 3 | S 000000063 | 020482812 | 1023/254/63 | 1023/254/63 | 0B | Fat32 | 4 | x 020482875 | 008369865 | 1023/254/63 | 1023/254/63 | 05 | extended | 5 | S 000000063 | 008369802 | 1023/254/63 | 1023/254/63 | 16 | other | 6 | x 028852740 | 032772600 | 1023/254/63 | 1023/254/63 | 05 | extended | 7 | S 000000063 | 032772537 | 1023/254/63 | 1023/254/63 | 83 | Linux | 8 | x 061625340 | 028676025 | 1023/254/63 | 1023/254/63 | 05 | extended | 9 | S 000000063 | 028675962 | 1023/254/63 | 1023/254/63 | 83 | Linux | 10 | x 090301365 | 004562460 | 1023/254/63 | 1023/254/63 | 05 | extended | 11 | S 000000063 | 004562397 | 1023/254/63 | 1023/254/63 | 82 | Linux swap |
| N | Start LBA | Length | Start C/H/S | End C/H/S | boot | Partition type | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | P 000000063 | 061432497 | 0000/001/01 | 1023/254/63 | 0B | Fat32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | X 061432560 | 094863825 | 1023/254/63 | 1023/254/63 | 05 | extended | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | S 000000063 | 020482812 | 1023/254/63 | 1023/254/63 | 0B | Fat32 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | x 020482875 | 008369865 | 1023/254/63 | 1023/254/63 | 05 | extended | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | S 000000063 | 008369802 | 1023/254/63 | 1023/254/63 | 16 | other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | x 028852740 | 032772600 | 1023/254/63 | 1023/254/63 | 05 | extended | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | S 000000063 | 032772537 | 1023/254/63 | 1023/254/63 | 83 | Linux | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | x 061625340 | 028676025 | 1023/254/63 | 1023/254/63 | 05 | extended | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | S 000000063 | 028675962 | 1023/254/63 | 1023/254/63 | 83 | Linux | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | x 090301365 | 004562460 | 1023/254/63 | 1023/254/63 | 05 | extended | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | S 000000063 | 004562397 | 1023/254/63 | 1023/254/63 | 82 | Linux swap | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Highlights | <p>HardCopyII: => image -cv Suspect: ST3802110A 80.0GB Destination: ST3120022A 120.0GB Imaging Drive OK (y/n)? y</p> <p>Title (80 characters): > DA-07-F32</p> <p>Copying 156301488 sectors from Suspect drive to Destination drive 00:00:10, 932672 sectors, 48.3MB/sec (2.8GB/min average) . . . 00:28:34, 156301488 sectors, 37.1MB/sec (2.8GB/min average) Updating File System [file: data001.bin] Verifying 156301488 sectors on Destination drive 00:00:10, 932672 sectors, 48.2MB/sec (2.7GB/min average) . . . 00:28:08, 156301488 sectors, 50.0MB/sec (2.8GB/min average) Updating File System [file: data001.hdr] MD5: 1a6747a6170b9bb347eeaa2678273ab3 Verify Complete (00:28:08, 80.0GB)</p> <p>data001.hdr (created by HardCopyII): [Title]</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-----------------|--|
| Case Identifier | DA-07-F32 |
| | <pre>text=DA-07-F32 [Geometry] ModelNumber=ST3802110A SerialNumber= 5LR6W869 MaximumLBA=156301488 [Capture] Retries=0 ReadErrors=0 WriteErrors=0 MaximumLBA=156301488 Source MD5 =1a6747a6170b9bb347eaa2678273ab3 Destination File MD5=1a6747a6170b9bb347eaa2678273ab3 Status=complete [NTFS CRCs] 00000000-00406f3f=7ee6c65e 00406f40-00806b3f=4dbed9bb 00806b40-00c0673f=3afc904 00c06740-0100633f=12ee7519 01006340-01405f3f=fb8d6ae3 01405f40-01805b3f=91f0aa66 01805b40-01c0573f=618962f3 01c05740-0200533f=dab0a167 02005340-02404f3f=615bb27b 02404f40-02804b3f=47c9e0c3 02804b40-02c0473f=d31a5963 02c04740-0300433f=1d1a1001 03004340-03403f3f=7268cf2b 03403f40-03803b3f=cf342d85 03803b40-03c0373f=d428be54 03c03740-0400333f=158534fe 04003340-04402f3f=021cb081 04402f40-04802b3f=fae68c48 04802b40-04c0273f=26733b45 04c02740-0500233f=b3f24081 05002340-05401f3f=5552095e 05401f40-05801b3f=3bdab86d 05801b40-05c0173f=da0d8497 05c01740-0600133f=bc1239cf 06001340-06400f3f=2e5dd06e 06400f40-06800b3f=9c778f4a 06800b40-06c0073f=9d639398 06c00740-0700713f=6c135b79 07007140-07406d3f=a132de09 07406d40-0780693f=46e0a6d6 07806940-07c0653f=51c37b43 07c06540-0800613f=8ad868a7 08006140-08405d3f=79b3a445 08405d40-0880593f=945aafa3 08805940-08c0553f=a9e92d2f 08c05540-0900513f=9a84d902</pre> |

| | | |
|----------------------|--|---------------|
| Case Identifier | DA-07-F32 | |
| | 09005140-09404d3f=ae64f009 09404d40-0950f8af=6513b039 shalsum (src, post image): 3164fdb4f6d7e455dcfe597477a6e5a90446a770 shalsum (image): 3164fdb4f6d7e455dcfe597477a6e5a90446a770 md5sum (src, post image): 1a6747a6170b9bb347eeaa2678273ab3 md5sum (image): 1a6747a6170b9bb347eeaa2678273ab3 | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-05 An image file 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. | not supported |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |

| | |
|-----------------|---|
| Case Identifier | DA-07-NT |
| Case Summary | Acquire a digital source of type DS to an image file. |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AM-06 DA-AM-08 DA-AO-01 DA-AO-05 DA-AO-22 DA-AO-23 DA-AO-24 |
| Test Date | Fri Aug 8 10:01:19 2008 |
| Drives | src: s80 dst: s120 |
| Setup | <p>src: IDE disk: Model (ST3802110A) serial # (5LR6W869) 156301488 sectors wiped with B7E7727C N Start LBA Length Start C/H/S End C/H/S boot Partition type 1 P 000000063 156296384 0000/001/01 1023/254/63 07 NTFS P primary partition (1-4) S secondary (sub) partition X primary extended partition (1-4) x secondary extended partition hash SHA-1: 5ce2e16c91d9763cf1dab9846b0b3db8691fba00 hash MD-5: b736c48b9397e73e2e5a010d18b2ff8a</p> |
| Highlights | <p>HardCopyII: => image -cv Suspect: ST3802110A 80.0GB Destination: ST3120022A 120.0GB Imaging Drive OK (y/n)? y</p> <p>Title (80 characters): > DA-07-NT</p> <p>Copying 156301488 sectors from Suspect drive to Destination drive 00:00:10, 932672 sectors, 48.4MB/sec (2.8GB/min average) . . . 00:28:34, 156301488 sectors, 36.8MB/sec (2.8GB/min average) Updating File System [file: data001.bin] Verifying 156301488 sectors on Destination drive 00:00:10, 932672 sectors, 48.3MB/sec (2.7GB/min average) . . . 00:28:04, 156301488 sectors, 51.9MB/sec (2.8GB/min average) Updating File System [file: data001.hdr] MD5: b736c48b9397e73e2e5a010d18b2ff8a Verify Complete (00:28:04, 80.0GB)</p> <p>data001.hdr (created by HardCopyII): [Title] text=DA-07-NT</p> <p>[Geometry] ModelNumber=ST3802110A SerialNumber= 5LR6W869 MaximumLBA=156301488</p> <p>[Capture] Retries=0</p> |

| | |
|-----------------|---|
| Case Identifier | DA-07-NT |
| | <pre> ReadErrors=0 WriteErrors=0 MaximumLBA=156301488 Source MD5 =b736c48b9397e73e2e5a010d18b2ff8a Destination File MD5=b736c48b9397e73e2e5a010d18b2ff8a Status=complete [NTFS CRCs] 00000000-00406f3f=e65b9908 00406f40-00806b3f=4dbed9bb 00806b40-00c0673f=3afcf904 00c06740-0100633f=12ee7519 01006340-01405f3f=fb8d6ae3 01405f40-01805b3f=91f0aa66 01805b40-01c0573f=618962f3 01c05740-0200533f=dab0a167 02005340-02404f3f=615bb27b 02404f40-02804b3f=47c9e0c3 02804b40-02c0473f=d31a5963 02c04740-0300433f=1d1a1001 03004340-03403f3f=7268cf2b 03403f40-03803b3f=cf342d85 03803b40-03c0373f=a115d6fe 03c03740-0400333f=158534fe 04003340-04402f3f=021cb081 04402f40-04802b3f=fae68c48 04802b40-04c0273f=74db710c 04c02740-0500233f=7629a054 05002340-05401f3f=5552095e 05401f40-05801b3f=ff190d02 05801b40-05c0173f=03f607f1 05c01740-0600133f=c8594a37 06001340-06400f3f=079ac370 06400f40-06800b3f=5dabb339 06800b40-06c0073f=b39e5d3d 06c00740-0700713f=dd0d050f 07007140-07406d3f=59c377ac 07406d40-0780693f=1fa9f128 07806940-07c0653f=c5604a34 07c06540-0800613f=0276811b 08006140-08405d3f=ddd0d7c2 08405d40-0880593f=3a1c17ad 08805940-08c0553f=25f4b6e9 08c05540-0900513f=f2bc86b1 09005140-09404d3f=3a377f77 09404d40-0950f8af=6513b039 shalsum (src, post image): 5ce2e16c91d9763cf1dab9846b0b3db8691fba00 shalsum (image): 5ce2e16c91d9763cf1dab9846b0b3db8691fba00 </pre> |

| | | |
|----------------------|--|-------------------------------------|
| Case Identifier | DA-07-NT | |
| | md5sum (src, post image): b736c48b9397e73e2e5a010d18b2ff8a md5sum (image): b736c48b9397e73e2e5a010d18b2ff8a | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-05 An image file 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. | not supported |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| | Analysis | The expected results were achieved. |

| | |
|-----------------|---|
| Case Identifier | DA-08 |
| Case Summary | Acquire a physical drive with hidden sectors to an image file. |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AM-06 DA-AM-07 DA-AM-08 DA-AO-01 DA-AO-05 DA-AO-22 DA-AO-23 DA-AO-24 |
| Test Date | Mon Jul 7 15:36:17 2008 |
| Drives | src: dco dst: s80 |
| Setup | No setup was performed due to the unavailability of Linux tools to set/remove DCOs. |
| Highlights | <p>HardCopyII: => image -cv Suspect: ST340014A 40.0GB Destination: ST3802110A 80.0GB Suspect HPA Start: 34.8GB Suspect HPA Size: 3.8GB Suspect DCO Start: 38.7GB Suspect DCO Size: 1.3GB Data hidden by DCO: 1.3GB Read data from DCO? OK (y/n)? y</p> <p>DCO will be restored after operation Do not power off until Ready prompt Imaging Drive OK (y/n)? y</p> <p>Title (80 characters): > DA-08</p> <p>Copying 78165360 sectors from Suspect drive to Destination drive 00:00:10, 806400 sectors, 48.2MB/sec (2.3GB/min average) . . . 00:15:18, 78165360 sectors, 37.5MB/sec (2.6GB/min average) Updating File System [DIR : DATA001] Verifying 78165360 sectors on Destination drive 00:00:10, 935424 sectors, 48.4MB/sec (2.8GB/min average) . . . 00:13:47, 78165360 sectors, 54.2MB/sec (2.9GB/min average) Updating File System [DIR : DATA001 hdr] MD5: 1c76d155455e68327e7a39e7d76eae57 Suspect HPA Start LBA: 68026393 Suspect HPA Sectors: 7558487 Suspect DCO Start LBA: 75584880 Suspect DCO Sectors: 2580480 Verify Complete (00:13:47, 40.0GB)</p> <p>data001.hdr (created by HardCopyII): [Title] text=DA-08</p> <p>[Geometry] ModelNumber=ST340014A</p> |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|-------------|--------------------------|-------------|------------------------------------|-----|--|-------------|-------------------------------------|-------------|------------------------------------|-------------|--|-------------|--|-------------|--------------------------------|-------------|--|---------------|--------------------------------------|-------------|--|
| Case Identifier | DA-08 | | | | | | | | | | | | | | | | | | | | | | | |
| | <pre> SerialNumber=3JX848NV MaximumLBA=78165360 DCOStartLBA=75584880 DCOSectors=2580480 DCOSize=1321205760 HPAStartLBA=68026393 HPASectors=7558487 HPASize=3869945344 [Capture] Retries=0 ReadErrors=0 WriteErrors=0 MaximumLBA=78165360 Source MD5 =1c76d155455e68327e7a39e7d76eae57 Destination File MD5=1c76d155455e68327e7a39e7d76eae57 Status=complete [FAT32 CRCs] FILE.000=4efc1d98 FILE.001=4efc1d98 FILE.002=4efc1d98 FILE.003=4efc1d98 FILE.004=4efc1d98 FILE.005=4efc1d98 FILE.006=4efc1d98 FILE.007=4efc1d98 FILE.008=4efc1d98 FILE.009=4efc1d98 FILE.010=4efc1d98 FILE.011=4efc1d98 FILE.012=4efc1d98 FILE.013=4efc1d98 FILE.014=4efc1d98 FILE.015=4efc1d98 FILE.016=d94194af FILE.017=c88c2c14 </pre> | | | | | | | | | | | | | | | | | | | | | | | |
| Results by Assertion | <table border="1"> <tr> <td data-bbox="347 1388 1230 1444">AM-01 Source acquired using interface AI.</td> <td data-bbox="1230 1388 1508 1444">as expected</td> </tr> <tr> <td data-bbox="347 1444 1230 1493">AM-02 Source is type DS.</td> <td data-bbox="1230 1444 1508 1493">as expected</td> </tr> <tr> <td data-bbox="347 1493 1230 1541">AM-03 Execution environment is XE.</td> <td data-bbox="1230 1493 1508 1541">n/a</td> </tr> <tr> <td data-bbox="347 1541 1230 1589">AM-05 An image file is created on file system type FS.</td> <td data-bbox="1230 1541 1508 1589">as expected</td> </tr> <tr> <td data-bbox="347 1589 1230 1638">AM-06 All visible sectors acquired.</td> <td data-bbox="1230 1589 1508 1638">as expected</td> </tr> <tr> <td data-bbox="347 1638 1230 1686">AM-07 All hidden sectors acquired.</td> <td data-bbox="1230 1638 1508 1686">as expected</td> </tr> <tr> <td data-bbox="347 1686 1230 1734">AM-08 All sectors accurately acquired.</td> <td data-bbox="1230 1686 1508 1734">as expected</td> </tr> <tr> <td data-bbox="347 1734 1230 1782">AO-01 Image file is complete and accurate.</td> <td data-bbox="1230 1734 1508 1782">as expected</td> </tr> <tr> <td data-bbox="347 1782 1230 1831">AO-05 Multifile image created.</td> <td data-bbox="1230 1782 1508 1831">as expected</td> </tr> <tr> <td data-bbox="347 1831 1230 1879">AO-22 Tool calculates hashes by block.</td> <td data-bbox="1230 1831 1508 1879">not supported</td> </tr> <tr> <td data-bbox="347 1879 1230 1896">AO-23 Logged information is correct.</td> <td data-bbox="1230 1879 1508 1896">as expected</td> </tr> </table> | AM-01 Source acquired using interface AI. | as expected | AM-02 Source is type DS. | as expected | AM-03 Execution environment is XE. | n/a | AM-05 An image file is created on file system type FS. | as expected | AM-06 All visible sectors acquired. | as expected | AM-07 All hidden 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. | not supported | AO-23 Logged information is correct. | as expected | |
| AM-01 Source acquired using interface AI. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AM-02 Source is type DS. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AM-03 Execution environment is XE. | n/a | | | | | | | | | | | | | | | | | | | | | | | |
| AM-05 An image file is created on file system type FS. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AM-06 All visible sectors acquired. | as expected | | | | | | | | | | | | | | | | | | | | | | | |
| AM-07 All hidden 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. | not supported | | | | | | | | | | | | | | | | | | | | | | | |
| AO-23 Logged information is correct. | as expected | | | | | | | | | | | | | | | | | | | | | | | |

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|-----------------|---|-------------|
| Case Identifier | DA-08 | |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |

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|---|--|---|-------------|--------------------------|-------------|------------------------------------|-----|---|-------------|-------------------------------------|-------------|--|-------------|---------------------|-------------|--|-------------|--|-------------|--|
| Case Identifier | DA-09 | | | | | | | | | | | | | | | | | | | |
| Case Summary | Acquire a digital source that has at least one faulty data sector. | | | | | | | | | | | | | | | | | | | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AM-06 DA-AM-08 DA-AM-09 DA-AM-10 DA-AO-01 DA-AO-05 DA-AO-22 DA-AO-23 DA-AO-24 | | | | | | | | | | | | | | | | | | | |
| Test Date | Mon Jul 28 09:39:55 2008 | | | | | | | | | | | | | | | | | | | |
| Drives | src: bad dst: a120 | | | | | | | | | | | | | | | | | | | |
| Setup | No special setup was performed. | | | | | | | | | | | | | | | | | | | |
| Highlights | <pre> HardCopyII: => image -cv Suspect: ST3802110A 80.0GB Destination: ST3120022A 120.0GB Imaging Drive OK (y/n)? y Title (80 characters): > DA-09 Copying 156301488 sectors from Suspect drive to Destination drive 00:00:10, 935424 sectors, 48.2MB/sec (2.8GB/min average) 00:00:20, 1903104 sectors, 48.3MB/sec (2.8GB/min average) 00:00:30, 2870784 sectors, 48.2MB/sec (2.8GB/min average) Error recovery (sectors 3032064 - 3064320) 00:00:52, 3032064 sectors, 3.7MB/sec (1.7GB/min average) 00:01:15, 3056141 sectors, 954.7KB/sec (1.2GB/min average) WARNING: Failed to copy LBA 3056141 . . . 01:00:19, 3108373 sectors, .0KB/sec (26.3MB/min average) WARNING: Failed to copy LBA 3108373 <user break> Canceling Operation OK (y/n)? y Operation Canceled </pre> | | | | | | | | | | | | | | | | | | | |
| Results by Assertion | <table border="1"> <tr> <td>AM-01 Source acquired using interface AI.</td> <td>as expected</td> </tr> <tr> <td>AM-02 Source is type DS.</td> <td>as expected</td> </tr> <tr> <td>AM-03 Execution environment is XE.</td> <td>n/a</td> </tr> <tr> <td>AM-05 An image is created on file system type FS.</td> <td>interrupted</td> </tr> <tr> <td>AM-06 All visible sectors acquired.</td> <td>interrupted</td> </tr> <tr> <td>AM-08 All sectors accurately acquired.</td> <td>interrupted</td> </tr> <tr> <td>AM-09 Error Logged.</td> <td>interrupted</td> </tr> <tr> <td>AM-10 Benign fill replaces inaccessible sectors.</td> <td>interrupted</td> </tr> <tr> <td>AO-01 Image file is complete and accurate.</td> <td>interrupted</td> </tr> </table> | AM-01 Source acquired using interface AI. | as expected | AM-02 Source is type DS. | as expected | AM-03 Execution environment is XE. | n/a | AM-05 An image is created on file system type FS. | interrupted | AM-06 All visible sectors acquired. | interrupted | AM-08 All sectors accurately acquired. | interrupted | AM-09 Error Logged. | interrupted | AM-10 Benign fill replaces inaccessible sectors. | interrupted | AO-01 Image file is complete and accurate. | interrupted | |
| AM-01 Source acquired using interface AI. | as expected | | | | | | | | | | | | | | | | | | | |
| AM-02 Source is type DS. | as expected | | | | | | | | | | | | | | | | | | | |
| AM-03 Execution environment is XE. | n/a | | | | | | | | | | | | | | | | | | | |
| AM-05 An image is created on file system type FS. | interrupted | | | | | | | | | | | | | | | | | | | |
| AM-06 All visible sectors acquired. | interrupted | | | | | | | | | | | | | | | | | | | |
| AM-08 All sectors accurately acquired. | interrupted | | | | | | | | | | | | | | | | | | | |
| AM-09 Error Logged. | interrupted | | | | | | | | | | | | | | | | | | | |
| AM-10 Benign fill replaces inaccessible sectors. | interrupted | | | | | | | | | | | | | | | | | | | |
| AO-01 Image file is complete and accurate. | interrupted | | | | | | | | | | | | | | | | | | | |

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|-----------------|--|---------------|
| Case Identifier | DA-09 | |
| | AO-05 Multifile image created. | interrupted |
| | AO-20 User notified that clone is truncated. | interrupted |
| | AO-22 Tool calculates hashes by block. | not supported |
| | AO-23 Logged information is correct. | interrupted |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | Starting with the first bad LBA, 3056141, almost every sector on the source disk was bad, so the operation was interrupted because with the builtin HardCopyII error recovery, the operation had already taken over an hour for less than 2% completion. | |

| | | |
|----------------------|--|---------------|
| Case Identifier | DA-12 | |
| Case Summary | Attempt to create an image file where there is insufficient space. | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-05 DA-AO-04 DA-AO-23 DA-AO-24 | |
| Test Date | Mon Jul 7 12:04:08 2008 | |
| Drives | src: s40 dst: d20 | |
| Setup | No special setup was performed. | |
| Highlights | HardCopyII: => image Suspect: ST340014A 40.0GB Destination: QUANTUM FIREBALLP AS20.5 20.5GB Imaging Drive OK (y/n)? y not enough capacity for image | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-05 An image file is created on file system type FS. | not created |
| | AO-04 User notified if space exhausted. | as expected |
| | AO-23 Logged information is correct. | not supported |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | HardCopyII does not try to image a source device if the destination device is not large enough to hold the entire source. | |

| | | |
|----------------------|--|-------------|
| Case Identifier | DA-19 | |
| Case Summary | Acquire a physical device to an unaligned clone, filling excess sectors. | |
| Assertions | DA-AM-01 DA-AM-02 DA-AM-03 DA-AM-04 DA-AM-06 DA-AM-08 DA-AO-11 DA-AO-13 DA-AO-14 DA-AO-18 DA-AO-22 DA-AO-23 DA-AO-24 | |
| Test Date | Tue Jun 17 14:40:21 2008 | |
| Drives | src: s20 dst: d120 | |
| Setup | src: IDE disk: Model (ST320011A) serial # (3HT0KJYK) 39102336 sectors wiped with 28000000 hash SHA-1: e73d92ca06caa27e44f60c8944e8adb2f5a0bec9 dst: IDE disk: Model (ST3120022A) serial # (5JT12AC1) 234441648 sectors wiped with FFFFFFFF3 | |
| Highlights | diskcmp: Sectors compared: 39102336 Sectors match: 39102336 Sectors differ: 0 Bytes differ: 0 Diffs range Source (39102336) has 195339312 fewer sectors than destination (234441648) Zero fill: 195339312 Other fill: 0 Other no fill: 0 Zero fill range: 39102336-234441647 Other fill range: Other not filled range: 0 source read errors, 0 destination read errors shasum (src, post clone): e73d92ca06caa27e44f60c8944e8adb2f5a0bec9 shasum (dst): e73d92ca06caa27e44f60c8944e8adb2f5a0bec9 | |
| Results by Assertion | AM-01 Source acquired using interface AI. | as expected |
| | AM-02 Source is type DS. | as expected |
| | AM-03 Execution environment is XE. | n/a |
| | AM-04 A clone is created. | as expected |
| | AM-06 All visible sectors acquired. | as expected |
| | AM-08 All sectors accurately acquired. | as expected |
| | AO-11 A clone is created during acquisition. | as expected |
| | AO-13 Clone created using interface AI. | as expected |
| | AO-14 An unaligned clone is created. | as expected |

| | | |
|-----------------|---|---------------|
| Case Identifier | DA-19 | |
| | AO-18 Excess sectors are filled. | as expected |
| | AO-22 Tool calculates hashes by block. | not supported |
| | AO-23 Logged information is correct. | not supported |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis | The expected results were achieved. | |