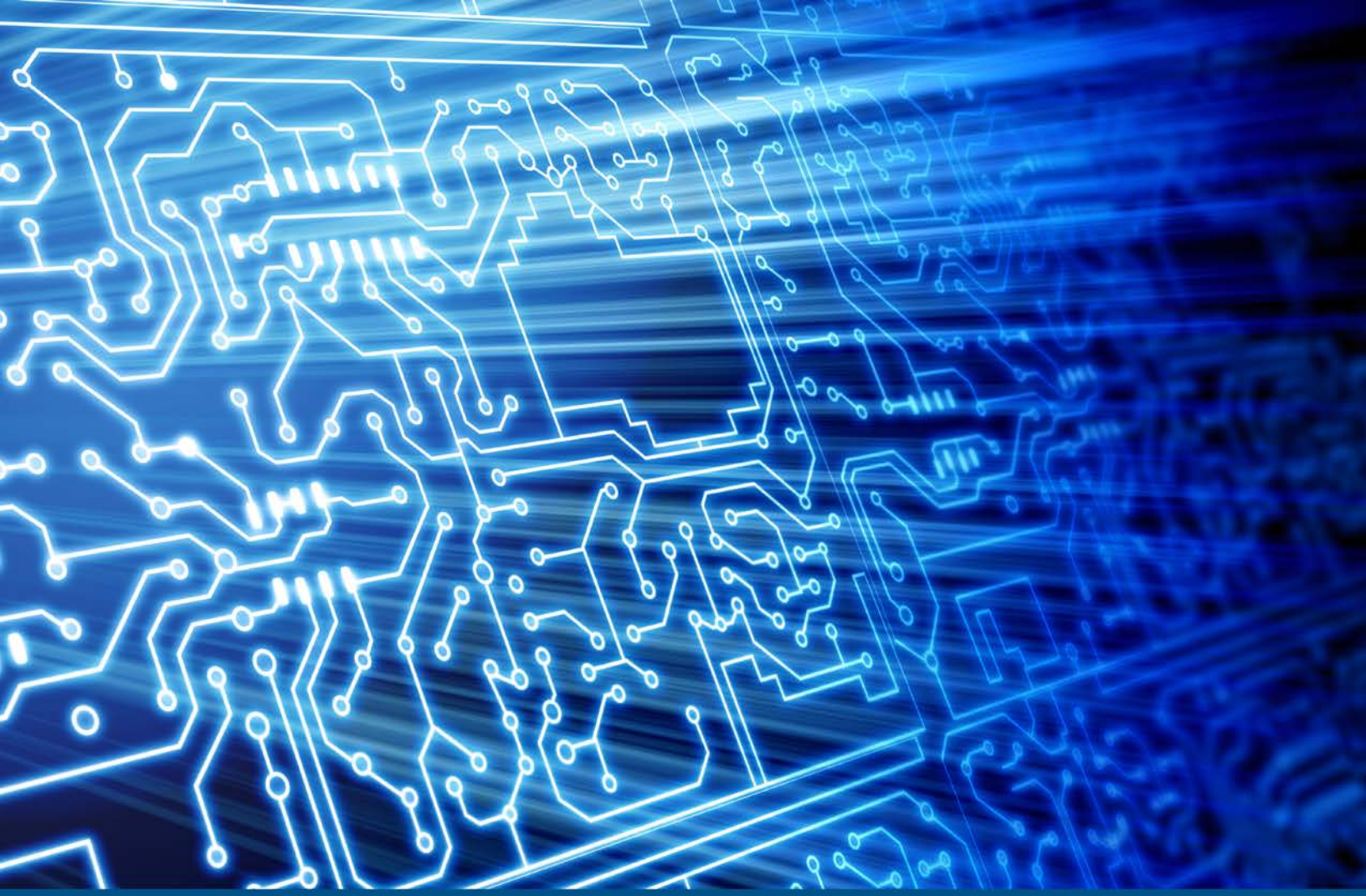

# X-Ways Forensics 16.2 SR-5

Test Results for Digital Data Acquisition Tool

*November 18, 2013*

Homeland Security

Science and Technology

This report was prepared for the Department of Homeland Security Science and Technology Directorate Cyber Security Division by the Office of Law Enforcement Standards of the National Institute of Standards and Technology.

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**November 2013**

# Test Results for Digital Data Acquisition Tool:
X-Ways Forensics 16.2 SR-5

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## Introduction

The Computer Forensics Tool Testing (CFTT) program is a joint project of the National Institute of Justice (NIJ), the Department of Homeland Security (DHS), and the National Institute of Standards and Technology Law Enforcement Standards Office (OLES) and Information Technology Laboratory (ITL). CFTT is supported by other organizations, including the Federal Bureau of Investigation, the U.S. Department of Defense Cyber Crime Center, U.S. Internal Revenue Service Criminal Investigation Division Electronic Crimes Program, and the U.S. Department of Homeland Security's Bureau of Immigration and Customs Enforcement, U.S. Customs and Border Protection and U.S. Secret Service. The objective of the CFTT program is to provide measurable assurance to practitioners, researchers, and other applicable users that the tools used in computer forensics investigations provide accurate results. Accomplishing this requires the development of specifications and test methods for computer forensics tools and subsequent testing of specific tools against those specifications.

Test results provide the information necessary for developers to improve tools, users to make informed choices, and the legal community and others to understand the tools' capabilities. The CFTT approach to testing computer forensics tools is based on well-recognized methodologies for conformance and quality testing. 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 X-Ways Forensics Version 16.2 SR-5 against the *Digital Data Acquisition Tool Assertions and Test Plan Version 1.0*, available at the CFTT Web site (http://www.cftt.nist.gov/DA-ATP-pc-01.pdf).

Test results from other tools 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. The first section 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, in general, 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. Please refer to the vendor documentation for guidance on using the tool.

# Test Results for Digital Data Acquisition Tool

| | |
|---|---|
| Tool Tested: | X-Ways Forensics |
| Software Version: | 16.2 SR-5 |
| Runtime Environment | Windows XP and Windows 7 |
| | |
| Supplier: | X-Ways Software Technology AG |
| | |
| Address: | X-Ways AG<br>Agrippastr. 37-39<br>50676 Cologne<br>Germany |
| | |
| Tel: | +49 221-420 486 5 |
| Fax: | +49 3212-123 2029 |
| E-mail: | mail@x-ways.com |
| WWW: | http://www.x-ways.com |

## 1 Results Summary

X-Ways Forensics version 16.2 SR-5 is designed to image, clone and restore data from hard drives and other secondary storage. Except for three test cases involving NTFS partitions, the tool acquired test media completely and accurately. When the tool cloned an NTFS partition (test case DA-02-NT) and when the images of previously acquired NTFS partitions were restored (test cases DA-14-NT and DA-14-NT-ALT), some sectors on the target partitions did not match the partitions that were acquired. The differences appear to be changes made by *Windows*; an artifact of the tool's operating environment (Windows 7 and Windows XP). The tool had no control over these changes. The vendor references this issue in the X-Ways user manual; "An image is usually preferable to a clone, as all data (and metadata such as timestamps) in an image file is protected from the operating system."

Additional observations:

- The tool allows the user to restore the image of a partition. For FAT32 and exFAT file system types, if the user selects a Windows drive letter (e.g., c: or e:) or a partition containing a file system as the destination, Windows may make some changes to file system metadata on the destination partition causing a difference of several sectors between the source partition and the destination partition it was restored to. No changes are made if a partition with no file system is selected as the destination. *This is not an issue with the tool*; this result is noted to make the reader aware of the difference between restoring an image of a partition to a logical drive vs. restoring an image of a partition to a partition formatted with a file system vs. restoring an image of a partition to an unformatted destination partition.

- Selecting to acquire a Windows drive letter or logical drive (e.g., c: or e:) does not acquire volume slack. To acquire volume slack the partition must be selected and not the drive letter. This result is noted to make the reader aware of the difference between choosing a logical vs. a partition acquisition.

Refer to sections 3.1, 3.2 and 3.3 for more details.

# 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 (e.g., DA-06 and DA-07) that are executed for every tool tested. Tool features guide the selection of additional test cases. If a given tool implements a feature then the test cases linked to that feature are run. Table 1 lists the testable features of X-Ways Forensics 16.2 SR-5 and the linked test cases selected for execution. Table 2 lists the features not available in X-Ways Forensics 16.2 SR-5 and the test cases not executed.

**Table 1. Selected Test Cases**

| Supported Optional Feature | Cases selected for execution |
|---|---|
| Create a clone during acquisition | 01 |
| Create an unaligned clone from a digital source | 02 |
| Create a truncated clone from a physical device | 04 |
| Base Cases | 06 & 07 |
| Read error during acquisition | 09 |
| Create an image file in more than one format | 10 |
| Destination Device Switching | 13 |
| Create a clone from an image file | 14 & 17 |

**Table 2. Omitted Test Cases**

| Unsupported Optional Feature | Cases omitted (not executed) |
|---|---|
| Create cylinder aligned clones | 03, 15, 21 & 23 |
| Device I/O error generator available | 05, 11 & 18 |
| Create an image of a drive with hidden sectors | 08 |
| Insufficient space for image file | 12 |
| 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 & 25 |
| Fill excess sectors on a clone device | 20, 21, 22 & 23 |
| Convert an image file from one format to another | 26 |

Some test cases have different forms to accommodate parameters within test assertions. These variations cover the acquisition interface to the source media, the type of digital

object acquired, image file format and the execution environment. In addition, the types of hash algorithms calculated, image file segment size and the type of hardware write blocker used were varied between test cases.

The following source access interfaces were tested: ATA28, ATA48, SATA28, SATA48, SCSI, FW, and USB. These are noted as variations on test cases DA-01, DA-06 and DA-14.

The following digital sources were tested: partitions (FAT12, FAT16, FAT32, FAT32X, exFAT, NTFS), 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 cases DA-02 and DA–07.

The following image file types are supported by the tool: E01, compressed and encrypted. These were tested as alternate image file formats and are noted as variations on test case DA-10.

# 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.

**Table 3. Assertions Tested**

| Assertions Tested | Tests | Anomaly |
|---|---|---|
| AM-01 The tool uses access interface SRC-AI to access the digital source. | 36 | |
| AM-02 The tool acquires digital source DS. | 36 | |
| AM-03 The tool executes in execution environment XE. | 56 | |
| AM-04 If clone creation is specified, the tool creates a clone of the digital source. | 16 | |
| AM-05 If image file creation is specified, the tool creates an image file on file system type FS. | 20 | |
| AM-06 All visible sectors are acquired from the digital source. | 36 | 3.3 |
| AM-08 All sectors acquired from the digital source are acquired accurately. | 36 | 3.1 |
| 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. | 1 | |
| AM-10 If unresolved errors occur while reading from | 1 | |

| Assertions Tested | Tests | Anomaly |
|---|---|---|
| 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. | 20 | |
| AO-02 If an image file format is specified, the tool creates an image file in the specified format. | 3 | |
| 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. | 20 | |
| 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. | 1 | |
| AO-11 If requested, a clone is created during an acquisition of a digital source. | 16 | |
| AO-12 If requested, a clone is created from an image file. | 20 | |
| AO-13 A clone is created using access interface DST-AI to write to the clone device. | 36 | |
| 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. | 35 | 3.1, 3.2 |
| AO-17 If requested, any excess sectors on a clone destination device are not modified. | 12 | |
| 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. | 2 | |
| AO-20 If a truncated clone is created, the tool notifies the user. | 2 | |
| AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. | 56 | |
| AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. | 36 | |

Two test assertions only apply in special circumstances. The assertion AO-22 is checked only for tools that create block hashes. 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. 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-07 All hidden sectors are acquired from the digital source. |
| 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-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 the subset is cloned. |
| AO-18 If requested, a benign fill is written to excess sectors of a clone. |
| AO-21 If there is a write error during clone creation, the tool notifies the user. |
| 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. |

## *3.1 Cloned or Restored NTFS Partitions*

When the tool cloned an NTFS partition, test case DA-02-NT, and when the image files of previously acquired NTFS partitions were restored, test cases DA-14-NT and DA-14-NT-ALT, some sectors on the target partitions did not match the partitions that were acquired. These changes were made by the Windows operating system, not X-Ways; an artifact of the tool's operating environment (Windows 7 and Windows XP). In test case DA-14-NT where the tool was run from Windows 7, 43,961 sectors differed. In test cases DA-02-NT and DA-14-NT-ALT where the tool was run from Windows XP, 147 and 139 sectors differed.

## *3.2 Restoring Images of Partitions With FAT32 and exFAT*

X-Ways can be used to restore the image of a partition. In testing the tool three methods were used:

1) the image was restored to a logical drive

2) the image was restored to a partition formatted with a file system
3) the image was restored to an unformatted partition

When images of FAT32 and exFAT partitions were restored using methods 1 and 2 three sectors differed between the images and the target partitions. These were changes to file system metadata made by the Windows operating system. When method 3 was used all sectors matched. This is not an issue with the tool; this result is noted to make the reader aware of the difference between restoring an image of a partition to a logical drive vs. restoring an image of a partition to a partition formatted with a file system vs. restoring an image of a partition to an unformatted partition.

### 3.3 Acquiring a Logical Drive Does Not Acquire Volume Slack

Selecting to acquire a Windows drive letter or logical drive (e.g., c: or e:) does not acquire volume slack. To acquire volume slack the partition must be selected and not the drive letter. In test case DA-07-NT where the tool user selected to acquire the Windows drive letter, eight unused sectors at the end of the partition containing the NTFS file system were not acquired. The partition had 27,744,192 sectors but the tool acquired only 27,744,184 sectors, skipping the last eight sectors of volume slack. When the partition was selected instead of the logical drive, test cases DA-02-NT and DA-07-NT-ALT, all sectors were acquired. This is not an issue with the tool; this result is noted to make the reader aware of the difference between choosing a logical vs. a partition acquisition.

## 4 Testing Environment

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

### 4.1 Execution Environment

The tool was executed in the MS Windows XP Pro 32-bit (Version 5.1.2600) and MS Windows 7 Ultimate 32-bit (Version 6.1.7600) environments.

### 4.2 Test Computers

Four computers were used to run the tool: **Freddy**, **Frank**, **DeathStar** and **Nihilus**.

**Freddy** and **Frank** have the following configuration:

Intel Desktop Motherboard D865GB/D865PERC (with ATA-6 IDE on board controller)
BIOS Version BF86510A.86A.0053.P13
Adaptec SCSI BIOS V3.10.0
Intel® Pentium™ 4 CPU 3.4Ghz
2577972KB RAM
SONY DVD RW DRU-530A, ATAPI CD/DVD-ROM drive
1.44 MB floppy drive
Two slots for removable IDE hard disk drives

Two slots for removable SATA hard disk drives
Two slots for removable SCSI hard disk drives

**DeathStar** and **Nihilus** have the following configuration:

TCP Custom built
ULT U12-40670 ULTRA PRODUCTS FULL TOWER ATX 2
ASU P8Z68VPRO/G ASUS P8Z68-V PRO/GEN3 SOCKET 1155 MB
INT CORE i5 2500 INTEL CORE I5 2500 3.3GHZ CPU
CRU 4GBD3-1333 CRUCIAL 4GB DDR3-1333 8 GIG RAM
EVGA 01GP31526K EVGA GT520 1GB PCI-E
Dual DVI display card
CRU 8400-5000-0 CRU DATAPORT V FRAME SATA
TCP SO CRU DATAPORT V IDE,
SAM SH-S222AB SAMSUNG 22X SATA DVD RW
SII NN830112 SIIG 3 PORT FIREWIRE 800 PCI
STA PCIIDE2 STARTECH 2 CHANNEL IDE CONTROLLER PCI
IOC SY-PEX40040 I/O CREST 1 + 1 PORT SATA/ESATA III CARD
CM EXTREME600W COOLERMASTER EXTREME 600W PS

## 4.3 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.

## 4.4 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 setup test drives.

### 4.4.1 Source Drive

The setup of most source drives follows the same general procedure, but there are several steps that may be varied 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 duplicate drive, with no faulty sectors, serves as a reference drive for comparison.

### 4.4.2 Media Drive

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

### 4.4.3 Destination 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.

## 4.5 Test Drive Analysis

For test cases that create a clone of a physical device, e.g., DA-01, DA-04, etc., the destination drive is compared to the source drive with the **diskcmp** program from the FS-TST package; for test cases that create a clone of a logical device, i.e., a partition, e.g., DA-02, DA-20, etc., the destination partition is compared to the source partition with the **partcmp** program. For a destination created from an image file, e.g., DA-14, the destination is compared, using either **diskcmp** (for physical device clones) or **partcmp** (for partition clones), to the source that was acquired to create the image file. Both **diskcmp** and **partcmp** note differences between the source and destination. If the destination is larger than the source it is scanned and the excess destination sectors are categorized as either, undisturbed (still containing the fill pattern written by **diskwipe**), zero filled or changed to something else.

For test case DA-09, imaging a drive with known faulty sectors, the program **anabad** is used to compare the faulty sector reference drive to a cloned version of the faulty sector drive.

For test cases such as DA-06 and DA-07 any acquisition hash computed by the tool under test is compared to the reference hash of the source to check that the source is completely and accurately acquired.

## 4.6 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.

# 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 Highlights** box of the test report.

## *5.1 Test Results Report Key*

The following table presents an explanation of each section of the test details in section 5.2. 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. |
| 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*

The test results are presented in this section.

### 5.2.1 DA-01-ATA28

| **Test Case DA-01-ATA28 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-01 Acquire a physical device using access interface AI to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source. |

<table>
<tr><th colspan="2">Test Case DA-01-ATA28 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td></td><td>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Wed Feb 15 06:36:04 2012</td></tr>
<tr><td>Drives:</td><td>src(12-IDE) dst (1C-SATA) other (none)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA1): < 10DC1439E56093FFA6F11E10442106F27D899F67 ><br>src hash (MD5): < ACAFB6838330FD24221199512A61D565 ><br>234441648 total sectors (120034123776 bytes)<br>14592/254/63 (max cyl/hd values)<br>14593/255/63 (number of cyl/hd)<br>Model (00JB-00REA0 ) serial # ( WD-WCANMD0605)</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>234441648 sectors wiped with 1C<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 234441648<br>Sectors match: 234441648<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>Write Block: 4 FastBloc IDE<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device<br>WDC WD1200JB-00REA0 --> WDC WD1200JD-00GBB0<br>234,441,648 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<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>as expected</td></tr>
<tr><td>AM-04 A clone is created.</td><td>as expected</td></tr>
<tr><td>AM-06 All visible sectors acquired.</td><td>as expected</td></tr>
<tr><td>AM-08 All sectors accurately acquired.</td><td>as expected</td></tr>
<tr><td>AO-11 A clone is created during acquisition.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-22 Tool calculates hashes by block.</td><td>option not available</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
<tr><td>AO-24 Source is unchanged by acquisition.</td><td>not checked</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.2 DA-01-ATA48

| **Test Case DA-01-ATA48 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-01 Acquire a physical device using access interface AI to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Mon May 21 10:45:48 2012 |
| Drives: | src(4F) dst (5D-SATA) other (none) |
| Source Setup: | src hash (SHA1): < 51FE53FD6BF7B7B69A875EDBD9AC01D41194C78C ><br>src hash (MD5): < A98DF276339451CE9E701D087E2BFC95 ><br>488397168 total sectors (250059350016 bytes)<br>30400/254/63 (max cyl/hd values)<br>30401/255/63 (number of cyl/hd)<br>IDE disk: Model (WDC WD2500JB-00EVA0) serial # (WD-WMAEH2681554)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 268413957 0000/001/01 1023/254/63 Boot 07 NTFS<br>2 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>3 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 268413957 sectors 137427945984 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>625142448 sectors wiped with 5D<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 488397168<br>Sectors match: 488397168<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (488397168) has 136745280 fewer sectors than destination (625142448)<br>Zero fill: 0<br>Src Byte fill (4F): 0<br>Dst Byte fill (5D): 136745280<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 488397168-625142447<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none |

<table>
<tr><th colspan="2">Test Case DA-01-ATA48 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td></td><td>start-sector 0<br><br>Write Block: 4 FastBloc IDE<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device<br>WDC WD2500JB-00EVA0 --> WDC WD3200AAKS-00V6A0<br>488,397,168 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<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>as expected</td></tr>
<tr><td>AM-04 A clone is created.</td><td>as expected</td></tr>
<tr><td>AM-06 All visible sectors acquired.</td><td>as expected</td></tr>
<tr><td>AM-08 All sectors accurately acquired.</td><td>as expected</td></tr>
<tr><td>AO-11 A clone is created during acquisition.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-22 Tool calculates hashes by block.</td><td>option not available</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
<tr><td>AO-24 Source is unchanged by acquisition.</td><td>not checked</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

### 5.2.3 DA-01-FW

| **Test Case DA-01-FW X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-01 Acquire a physical device using access interface AI to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Mar 16 15:20:51 2012 |
| Drives: | src(07-SATA) dst (1C-SATA) other (none) |
| Source Setup: | src hash (SHA256): <<br>CE65C4A3C3164D3EBAD58D33BB2415D29E260E1F88DC5A131B1C4C9C2945B8A9 ><br>src hash (SHA1): < 655E9BDDB36A3F9C5C4CC8BF32B8C5B41AF9F52E ><br>src hash (MD5): < 2EAF712DAD80F66E30DEA00365B4579B ><br>156301488 total sectors (80026361856 bytes)<br>Model (WDC WD800JD-32HK) serial # (WD-WMAJ91510044)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 156280257 0000/001/01 1023/254/63 Boot 07 NTFS<br>2 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>3 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 156280257 sectors 80015491584 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>234441648 sectors wiped with 1C<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 156301488<br>Sectors match: 156301488<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (156301488) has 78140160 fewer sectors than destination (234441648)<br>Zero fill: 0<br>Src Byte fill (07): 0<br>Dst Byte fill (1C): 78140160<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 156301488-234441647<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ====== |

**Test Case DA-01-FW X-Ways Forensics 16.2 SR-5**

```
fill none
start-sector 0

Write Block: 56 Tableau Forensic SATA/IDE Bridge

OS: Microsoft Windows XP [Version 5.1.2600]

====== Extract from X-Ways logfile.txt file ======
Source device --> Destination device
WDC WD800JD-32HKA0 --> WDC WD1200JD-00GBB0
156,301,488 sector(s) successfully copied.
```

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-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. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results achieved

## 5.2.4 DA-01-SATA28

<table>
<tr><th colspan="2">Test Case DA-01-SATA28 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-01 Acquire a physical device using access interface AI to an unaligned clone.</td></tr>
<tr><td>Assertions:</td><td>AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Mon Dec 12 13:46:16 2011</td></tr>
<tr><td>Drives:</td><td>src(01-SATA) dst (50-IDE) other (none)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA256): <<br>1AA01FEAE55F5CD55185D2B1A1359B3F913E7093FEF1D1ADA220CAC456BA40D8 ><br>src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C ><br>src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 ><br>156301488 total sectors (80026361856 bytes)<br>Model (0JD-32HKA0 ) serial # (WD-WMAJ91448529)</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>156301488 sectors wiped with 50<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 156301488<br>Sectors match: 156301488<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br>Write Block: none<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device<br>WDC WD800JD-32HKA0 --> WDC WD800JB-00JJC0<br>156,301,488 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<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>as expected</td></tr>
<tr><td>AM-04 A clone is created.</td><td>as expected</td></tr>
</table>
</td></tr>
</table>

| Test Case DA-01-SATA28 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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. | option not available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis: | Expected results achieved | |

## 5.2.5 DA-01-SATA48

| **Test Case DA-01-SATA48 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-01 Acquire a physical device using access interface AI to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue Dec 13 15:56:42 2011 |
| Drives: | src(0B-SATA) dst (2C-SATA) other (none) |
| Source Setup: | src hash (SHA256): <<br>0026805624818CAEDAD12019DCDB16E79DE3C47CFE1C717193F9880B3DB32A9F ><br>src hash (SHA1): < DA892EE968DD828F2F1B6825C1D3EF35062A0737 ><br>src hash (MD5): < 1873847F597A69D0F5DB991B67E84F92 ><br>488397168 total sectors (250059350016 bytes)<br>30400/254/63 (max cyl/hd values)<br>30401/255/63 (number of cyl/hd)<br>Model (00JD-22FYB0 ) serial # (WD-WMAEH2677545) |
| Log Highlights: | ====== Destination drive setup ======<br>488397168 sectors wiped with 2C<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 488397168<br>Sectors match: 488397168<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br>Write Block: none<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device<br>WDC WD2500JD-22FYB0 --> WDC WD2500AAKS-00VSA0<br>488,397,168 sector(s) successfully copied.<br><br>====== Source drive rehash ======<br>Rehash (SHA1) of source: DA892EE968DD828F2F1B6825C1D3EF35062A0737 |
| Results: | **Assertion & Expected Result** \| **Actual Result** |

| Test Case DA-01-SATA48 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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-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. | option not available |
| | 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-01-SCSI

| **Test Case DA-01-SCSI X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-01 Acquire a physical device using access interface AI to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Mar 23 15:37:19 2012 |
| Drives: | src(E0) dst (05-SATA) other (none) |
| Source Setup: | src hash (SHA1): < 4A6941F1337A8A22B10FC844B4D7FA6158BECB82 ><br>src hash (MD5): < A97C8F36B7AC9D5233B90AC09284F938 ><br>17938985 total sectors (9184760320 bytes)<br>Model (ATLAS10K2-TY092J) serial # (169028142436) |
| Log Highlights: | ====== Destination drive setup ======<br>156301488 sectors wiped with 5<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 17938985<br>Sectors match: 17938985<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (17938985) has 138362503 fewer sectors than destination (156301488)<br>Zero fill: 0<br>Src Byte fill (E0): 0<br>Dst Byte fill (05): 138362503<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 17938985-156301487<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device<br>QUANTUM ATLAS10K2-TY092J --> WDC WD800JD-32HKA0<br>17,938,985 sector(s) successfully copied. |

| Test Case DA-01-SCSI X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | ====== Source drive rehash ======<br>Rehash (SHA1) of source: 4A6941F1337A8A22B10FC844B4D7FA6158BECB82 |
| 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-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. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | as expected |

| | |
|---|---|
| Analysis: | Expected results achieved |

## 5.2.7 DA-01-USB

| **Test Case DA-01-USB X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-01 Acquire a physical device using access interface AI to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Dec 16 15:07:11 2011 |
| Drives: | src(63-fu2) dst (61-USB) other (none) |
| Source Setup: | src hash (SHA256): <<br>EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D ><br>src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B ><br>src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC ><br>117304992 total sectors (60060155904 bytes)<br>Model (SP0612N ) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16<br>2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended<br>3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32<br>4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 004192902 sectors 2146765824 bytes<br>3 113097537 sectors 57905938944 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>117304992 sectors wiped with 61<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 117304992<br>Sectors match: 117304992<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br>Write Block: 18 UltraBlock-USB<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device |

| **Test Case DA-01-USB X-Ways Forensics 16.2 SR-5** | |
|---|---|
| | SAMSUNG SP0612N --> SAMSUNG SP0612N<br>117,304,992 sector(s) successfully copied. |
| 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-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. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | as expected |

| | |
|---|---|
| Analysis: | Expected results achieved |

### 5.2.8 DA-02-CF

| **Test Case DA-02-CF X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue Mar 27 10:03:24 2012 |
| Drives: | src(C1-CF) dst (C2-CF) other (none) |
| Source Setup: | src hash (SHA256): <<br>C7CF0218222DF80D5316511D6814266C7FA507C13F795AD3D323BB73C1590D80 ><br>src hash (SHA1): < 5B8235178DF99FA307430C088F81746606638A0B ><br>src hash (MD5): < 776DF8B4D2589E21DEBCF589EDC16D78 ><br>503808 total sectors (257949696 bytes)<br>Model ( CF) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 778135908 1141509631 0357/116/40 0357/032/45 Boot 72 other<br>2 P 168689522 1936028240 0288/115/43 0367/114/50 Boot 65 other<br>3 P 1869881465 1936028192 0366/032/33 0357/032/43 Boot 79 other<br>4 P 2885681152 000055499 0372/097/50 0000/010/00 Boot 0D other<br>1 1141509631 sectors 584452931072 bytes<br>2 1936028240 sectors 991246458880 bytes<br>3 1936028192 sectors 991246434304 bytes<br>4 000055499 sectors 28415488 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>503808 sectors wiped with C2<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 503808<br>Sectors match: 503808<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>Write Block: 7 UltraBlock Forensic Card Reader<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ====== |

| Test Case DA-02-CF X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | Source device --> Destination device<br>ICSI CF Card CF --> Generic CF<br>503,808 sector(s) successfully copied. |
| 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-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. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | as expected |

| | |
|---|---|
| Analysis: | Expected results achieved |

## 5.2.9 DA-02-EXFAT

| **Test Case DA-02-EXFAT X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue Apr 24 11:24:48 2012 |
| Drives: | src(49-SATA) dst (02-IDE) other (none) |
| Source Setup: | src hash (SHA1): < 6EC98F42EB5914D1F9D1661C0BB0A3660569F95B ><br>src hash (MD5): < 30BAB74F67783C0555BCBD73DD4D0D5E ><br>156301488 total sectors (80026361856 bytes)<br>Model (ST380815AS ) serial # ( 5QZ5TD8Y)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000002048 010485760 0000/032/33 0652/213/09 07 NTFS<br>2 P 010490445 005863725 0653/000/01 1017/254/63 83 Linux<br>3 P 016354170 007807590 1018/000/01 1023/254/63 83 Linux<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 010485760 sectors 5368709120 bytes<br>2 005863725 sectors 3002227200 bytes<br>3 007807590 sectors 3997486080 bytes<br>49-SATAEXFAT-sha256 10485760<br>1309F5D1C2BC16E02F9C87A6AC8D79308F636B34DC002081757C4564A1373497<br>49-SATAEXFAT-sha1sum 10485760 3D44F34844E82F9DEDDD5CDC33E18EC066CF1EAB<br>49-SATAEXFAT-md5sum 10485760 E85782BF9358629D0115B70EEDE2C616 |
| Log Highlights: | ====== Destination drive setup ======<br>78165360 sectors wiped with 2<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 10485760<br>Sectors match: 10485760<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range:<br>run start Tue Apr 24 13:35:10 2012<br>run finish Tue Apr 24 13:39:30 2012<br>elapsed time 0:4:20<br>Normal exit<br><br>====== Tool Settings: ======<br>fill none<br><br>Write Block: 56 Tableau Forensic SAT/IDE Bridge |

| **Test Case DA-02-EXFAT X-Ways Forensics 16.2 SR-5** | |
|---|---|
| | OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device<br>Drive E: --> Drive D:<br>10,485,760 sector(s) successfully copied. |
| 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-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. | option not available |
| 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-02-F12

| **Test Case DA-02-F12 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu Dec 22 14:39:42 2011 |
| Drives: | src(01-IDE) dst (08-IDE) other (none) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F12-md5 16418303 E20E3CFEA80BF6F2D2AA75E829CC8CD9<br>01F12-sha1 16418303 F8B72B65436DE3BD394ACFF71D405D0389C0E9B7 |
| Log Highlights: | ====== Destination drive setup ======<br>78165360 sectors wiped with 8<br><br>====== Comparison of original to clone drive ====== |

**Test Case DA-02-F12 X-Ways Forensics 16.2 SR-5**

```
Sectors compared:        32067
Sectors match:           32067
Sectors differ:              0
Bytes differ:                0
Diffs range:
run start Fri Dec 23 15:11:16 2011
run finish Fri Dec 23 15:11:19 2011
elapsed time 0:0:3
Normal exit


====== Tool Settings: ======
fill none
start-sector 0
Write Block: 57 Tableau T35e

OS: Microsoft Windows [Version 6.1.7600]

====== Extract from X-Ways logfile.txt file ======
Source device --> Destination device
Drive O: --> Drive E:
32,067 sector(s) successfully copied.
```

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-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. | option not available |
| 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-02-F16

| **Test Case DA-02-F16 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Dec 23 19:19:44 2011 |
| Drives: | src(01-IDE) dst (08-IDE) other (none) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F16-md5 1077479423 8B24F3D793188AF2473F69B267AFDA42<br>01F16-sha1 1077479423 074BA831B10132F4BF9F86AFAB37CB7FEF482C7D |
| Log Highlights: | ====== Destination drive setup ======<br>78165360 sectors wiped with 8<br><br>====== Comparison of original to clone drive ====== |

**Test Case DA-02-F16 X-Ways Forensics 16.2 SR-5**

```
Sectors compared:      2104452
Sectors match:         2104452
Sectors differ:              0
Bytes differ:                0
Diffs range:
run start Tue Dec 27 20:45:38 2011
run finish Tue Dec 27 20:48:08 2011
elapsed time 0:2:30
Normal exit


====== Tool Settings: ======
fill none
start-sector 0
Write Block: 57 Tableau T35e

OS: Microsoft Windows [Version 6.1.7600]

====== Extract from X-Ways logfile.txt file ======
Source device --> Destination device
Drive N: --> Drive F:
2,104,452 sector(s) successfully copied.
```

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-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. | option not available |
| 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-02-F32

| **Test Case DA-02-F32 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed Jan 11 09:54:52 2012 |
| Drives: | src(01-IDE) dst (24-SATA) other (none) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F32-md5 4301789183 BFF7DC64C54339DA2A9D7972C076B514<br>01F32-sha1 4301789183 B861D9E999F39750B484FFB693FF69DEC090C6B8<br>01F32-sha256 4301789183<br>CAE3A4CC33D59548063255D2AA4016940AC712DD96985AD9B94FF271CC3E943E |
| Log | ====== Destination drive setup ====== |

**Test Case DA-02-F32 X-Ways Forensics 16.2 SR-5**

Highlights:

```
156301488 sectors wiped with 24

====== Comparison of original to clone drive ======
Sectors compared:      8401932
Sectors match:         8401932
Sectors differ:              0
Bytes differ:                0
Diffs range:
run start Thu Jan 12 06:10:24 2012
run finish Thu Jan 12 06:13:48 2012
elapsed time 0:3:24
Normal exit


====== Tool Settings: ======
fill none
start-sector 0
Write Block: 4 FastBlock IDE

OS: Microsoft Windows [Version 6.1.7600]

====== Extract from X-Ways logfile.txt file ======
Source device --> Destination device
Drive Q: --> Drive G:
8,401,932 sector(s) successfully copied.
```

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-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. | option not available |
| 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-02-F32X

| **Test Case DA-02-F32X X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed Feb 29 13:16:52 2012 |
| Drives: | src(43) dst (57-IDE) other (none) |
| Source Setup: | src hash (SHA256): <<br>2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E ><br>src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 ><br>src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 ><br>78125000 total sectors (40000000000 bytes)<br>Model (0BB-75JHC0 ) serial # ( WD-WMAMC46588)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027712062 sectors 14188575744 bytes<br>43F32x-md5sum 10742183424 5980CB0FA68E9862C65765DF50F00906<br>43F32x-sha1sum 10742183423 379C1AC47AF956FC8C80389C2A7427A7F8FB4E89<br>43F32x-sha1sum 10742183423 379C1AC47AF956FC8C80389C2A7427A7F8FB4E89 |

**Test Case DA-02-F32X X-Ways Forensics 16.2 SR-5**

Log Highlights:

```
====== Destination drive setup ======
80043264 sectors wiped with 57

====== Comparison of original to clone drive ======
Sectors compared:     20980827
Sectors match:        20980827
Sectors differ:              0
Bytes differ:                0
Diffs range:
run start Wed Feb 29 16:07:42 2012
run finish Wed Feb 29 16:16:32 2012
elapsed time 0:8:50
Normal exit


====== Tool Settings: ======
fill none
start-sector 0

Write Block: 4 FastBloc IDE

OS: Microsoft Windows XP [Version 5.1.2600]

====== Extract from X-Ways logfile.txt file ======
Source device --> Destination device
Drive D: --> Drive E:
20,980,827 sector(s) successfully copied.
```

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-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. | option not available |
| 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-02-NT

| **Test Case DA-02-NT X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | frank |
| Test Date: | Tue Jul 16 10:40:23 2013 |
| Drives: | src(01-IDE-96) dst (08-IDE) other (none) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01NT-md5 14205026303 92B27B30BEE8B0FFBA8C660FA1590D49 |
| Log Highlights: | ====== Destination drive setup ======<br>78165360 sectors wiped with 8<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 27744192 |

**Test Case DA-02-NT X-Ways Forensics 16.2 SR-5**

```
Sectors match:        27744045
Sectors differ:            147
Bytes differ:            50507
Diffs range:  6160368-6160455, 6291448, 6291456-6291479,
6291504-6291519, 9759488, 9760000, 13872088-13872095,
13872168-13872175
Source (27744192) has 1622565 fewer sectors than destination (29366757)
Zero fill:     0
Src Byte fill (01): 0
Dst Byte fill (08): 1622565
Other fill:    0
Other no fill: 0
Zero fill range:
Src fill range:
Dst fill range:  27744192-29366756
Other fill range:
Other not filled range:
run start Tue Jul 16 08:38:53 2013
run finish Tue Jul 16 08:51:33 2013
elapsed time 0:12:40
Normal exit

Write Block: 56 Tableau Forensic SATA/IDE Bridge

OS: Microsoft Windows XP [Version 5.1.2600]

====== Extract from X-Ways logfile.txt file ======
Hard disk 6, Partition 8 --> Hard disk 1, Partition 2
Sector 0 --> Sector 0
27,744,192 sector(s) successfully copied.
```

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-04 A clone is created. | as expected |
| AM-06 All visible sectors acquired. | as expected |
| AM-08 All sectors accurately acquired. | 147 sectors differ |
| 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. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results not achieved

### 5.2.15 DA-02-THUMB

| **Test Case DA-02-THUMB X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-02 Acquire a digital source of type DS to an unaligned clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed Jun 13 13:40:52 2012 |
| Drives: | src(D5-THUMB) dst (D6-THUMB) other (none) |
| Source Setup: | src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # () |
| Log Highlights: | ====== Destination drive setup ======<br>4001760 sectors wiped with D6<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 505856<br>Sectors match: 505856<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (505856) has 3495904 fewer sectors than destination (4001760)<br>Zero fill: 0<br>Src Byte fill (D5): 0<br>Dst Byte fill (D6): 3495904<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 505856-4001759<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>Write Block: 18 Tableau Forensic USB Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source device --> Destination device |

| **Test Case DA-02-THUMB X-Ways Forensics 16.2 SR-5** | |
|---|---|
| | CRUCIAL usb2.0Flash Disk --> SanDisk Cruzer Titanium<br>505,856 sector(s) successfully copied. |
| Results: | |

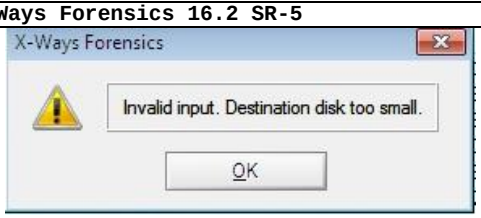
| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-01 Source acquired using interface AI. | as expected |
| AM-02 Source is type DS. | as expected |
| AM-03 Execution environment is XE. | as expected |
| AM-04 A clone is created. | as expected |
| AM-06 All visible sectors acquired. | 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. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

| | |
|---|---|
| Analysis: | Expected results achieved |

### 5.2.16 DA-04

| **Test Case DA-04 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-04 Acquire a physical device to a truncated clone. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-04 If clone creation is specified, the tool creates a clone of the digital source.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>AO-11 If requested, a clone is created during an acquisition of a digital source.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>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.<br>AO-20 If a truncated clone is created, the tool notifies the user.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Jan 13 05:36:13 2012 |
| Drives: | src(41) dst (66) other (none) |
| Source Setup: | src hash (SHA256): <<br>FBF3AA21489653D880FFAE71449A9F7E8EE4F56A6C3BF58A3A3FFB13203F1B1D ><br>src hash (SHA1): < 15CAA1A307271160D8372668BF8A03FC45A51CC9 ><br>src hash (MD5): < 0A6A8EF78BDC14E2026710D8CCB5607C ><br>78125000 total sectors (40000000000 bytes)<br>65534/015/63 (max cyl/hd values)<br>65535/016/63 (number of cyl/hd)<br>IDE disk: Model (WDC WD400BB-75JHC0) serial # (WD-WMAMC4658355)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 078107967 0000/001/01 1023/254/63 Boot 07 NTFS<br>2 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>3 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 078107967 sectors 39991279104 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>19925880 sectors wiped with 66<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>Write Block: 4 FastBloc IDE<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== No X-Ways logfile.txt file created ======<br><br>====== Tool Message: ====== |

**Test Case DA-04 X-Ways Forensics 16.2 SR-5**




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-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-19 Truncated clone is created. | as expected |
| AO-20 User notified that clone is truncated. | as expected |
| AO-22 Tool calculates hashes by block. | option not available |
| 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-06-ATA28

| **Test Case DA-06-ATA28 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Jan 13 15:17:34 2012 |
| Drives: | src(43) dst (none) other (58-IDE) |
| Source Setup: | src hash (SHA256): <<br>2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E ><br>src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 ><br>src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 ><br>78125000 total sectors (40000000000 bytes)<br>Model (0BB-75JHC0 ) serial # ( WD-WMAMC46588)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027712062 sectors 14188575744 bytes |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br>start-sector 0<br>image-format e01<br>compression none |

**Test Case DA-06-ATA28 X-Ways Forensics 16.2 SR-5**

```
Write Block: 4 FastBloc IDE

OS: Microsoft Windows XP [Version 5.1.2600]

====== Image file segments ======
     1 40009789329 2012-01-17 23:01 da-06-ata28.e01
     2        5011 2012-01-17 23:29 da-06-ata28.txt

====== Extract from X-Ways logfile.txt file ======
Source: Hard disk 0
Sectors 0-78124999
Destination: D:\da-06-ata28.e01
Model: WDC WD400BB-75JHC0
Total capacity: 40,000,000,000 bytes = 37.3 GB
Sector count: 78,125,000 [user accessible]
Sector count: 78,125,000 [actual]
Hash of source data: 888E2E7F7AD237DC7A732281DD93F325065E5871 (SHA-1)
```

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 available |
| 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-06-ATA48

| **Test Case DA-06-ATA48 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Jun 8 14:48:24 2012 |
| Drives: | src(4E) dst (none) other (5A-SATA) |
| Source Setup: | src hash (SHA1): < 7DDFF1A74B2E2B7E7EE43C41CD9066E27986644D ><br>src hash (MD5): < 62C9436930204E0F38921771ACA1BB88 ><br>488397168 total sectors (250059350016 bytes)<br>30400/254/63 (max cyl/hd values)<br>30401/255/63 (number of cyl/hd)<br>IDE disk: Model (WDC WD2500JB-22FUA0) serial # (WD-WMAEP1925256)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 488375937 0000/001/01 1023/254/63 Boot 07 NTFS<br>2 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>3 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 488375937 sectors 250048479744 bytes |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br>start-sector 0<br>image-format dd<br>compression none<br><br>Write Block: 4 FastBloc IDE<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 250059350016 2012-06-11 23:21 da-06-ata48.001<br>2 1680 2012-06-12 00:39 da-06-ata48.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 0<br>Sectors 0-488397167<br>Destination: J:\da-06-ata48\da-06-ata48.001<br>Model: WDC WD2500JB-22FUA0<br>Total capacity: 250,059,350,016 bytes = 233 GB<br>Sector count: 488,397,168 [user accessible]<br>Sector count: 488,397,168 [actual]<br>Hash of source data: 7DDFF1A74B2E2B7E7EE43C41CD9066E27986644D (SHA-1) |
| Results: | |

| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-01 Source acquired using interface AI. | as expected |
| AM-02 Source is type DS. | as expected |

| Test Case DA-06-ATA48 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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 available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | not checked |
| Analysis: | Expected results achieved | |

## 5.2.19 DA-06-FW

| **Test Case DA-06-FW X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue Apr 10 14:53:05 2012 |
| Drives: | src(63-FU2) dst (none) other (29-SATA) |
| Source Setup: | src hash (SHA256): <<br>EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D ><br>src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B ><br>src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC ><br>117304992 total sectors (60060155904 bytes)<br>Model (SP0612N ) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16<br>2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended<br>3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32<br>4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 004192902 sectors 2146765824 bytes<br>3 113097537 sectors 57905938944 bytes |
| Log Highlights: | ====== Tool Settings: ======<br>hash MD-5<br>re-verify yes<br>start-sector 0<br>image-format e01<br>compression none<br><br>Write Block: 64 Tableau Forensic FireWire Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 60074843391 2012-04-11 14:56 da-06-fw.e01<br>2 1865 2012-04-11 15:12 da-06-fw.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 7<br>Sectors 0-117304991<br>Destination: D:\da-06-fw\da-06-fw.e01<br>Model: DMI SAMSUNG SP0612N<br>Total capacity: 60,060,155,904 bytes = 55.9 GB<br>Sector count: 117,304,992<br>Sector count: 4,192,902<br>Hash of source data: EE217BC4FA4F3D1B4021D29B065AA9EC (MD5) |

| **Test Case DA-06-FW X-Ways Forensics 16.2 SR-5** | |
|---|---|
| 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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

| | |
|---|---|
| Analysis: | Expected results achieved |

## 5.2.20 DA-06-SATA28

**Test Case DA-06-SATA28 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Mon Feb 6 13:33:08 2012 |
| Drives: | src(01-SATA) dst (none) other (23-IDE) |
| Source Setup: | src hash (SHA256): <<br>1AA01FEAE55F5CD55185D2B1A1359B3F913E7093FEF1D1ADA220CAC456BA40D8 ><br>src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C ><br>src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 ><br>156301488 total sectors (80026361856 bytes)<br>Model (0JD-32HKA0 ) serial # (WD-WMAJ91448529) |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-256<br>re-verify yes<br>start-sector 0<br>image-format e01<br>compression none<br><br>Write Block: none<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 80045929063 2012-02-06 20:17 da-06-sata28.e01<br>2 1194 2012-02-06 21:10 da-06-sata28.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 0<br>Sectors 0-156301487<br>Destination: D:\da-06-sata28\da-06-sata28.e01<br>Model: WDC WD800JD-32HKA0<br>Total capacity: 80,026,361,856 bytes = 74.5 GB<br>Sector count: 156,301,488 [user accessible]<br>Sector count: 156,301,488 [actual]<br>Hash of source data:<br>1AA01FEAE55F5CD55185D2B1A1359B3F913E7093FEF1D1ADA220CAC456BA40D8 (SHA-256)<br><br>====== Source drive rehash ======<br>Rehash (SHA1) of source: 4951236428C36B944E62E8D65862DCBEF05F282C |
| 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 |

| Test Case DA-06-SATA28 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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 available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis: | Expected results achieved | |

## 5.2.21 DA-06-SATA48

| **Test Case DA-06-SATA48 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue Feb 7 10:18:09 2012 |
| Drives: | src(0B-SATA) dst (none) other (66-SATA) |
| Source Setup: | src hash (SHA256): <<br>0026805624818CAEDAD12019DCDB16E79DE3C47CFE1C717193F9880B3DB32A9F ><br>src hash (SHA1): < DA892EE968DD828F2F1B6825C1D3EF35062A0737 ><br>src hash (MD5): < 1873847F597A69D0F5DB991B67E84F92 ><br>488397168 total sectors (250059350016 bytes)<br>30400/254/63 (max cyl/hd values)<br>30401/255/63 (number of cyl/hd)<br>Model (00JD-22FYB0 ) serial # (WD-WMAEH2677545) |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-256<br>re-verify yes<br>start-sector 0<br>image-format dd<br>compression none<br><br>Write Block: none<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Image file segments ======<br>1 250059350016 2012-02-07 18:25 da-06-sata48.001<br>2 1098 2012-02-08 10:35 da-06-sata48.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 2<br>Sectors 0-488397167<br>Destination: I:\da-06-sata48\da-06-sata48.001<br>Model: WDC WD2500JD-22FYB0<br>Total capacity: 250,059,350,016 bytes = 233 GB<br>Sector count: 488,397,168 [user accessible]<br>Sector count: 488,397,168 [actual]<br>Hash of source data:<br>0026805624818CAEDAD12019DCDB16E79DE3C47CFE1C717193F9880B3DB32A9F (SHA-256)<br><br>====== Source drive rehash ======<br>Rehash (SHA1) of source: DA892EE968DD828F2F1B6825C1D3EF35062A0737 |
| Results: | |

| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-01 Source acquired using interface AI. | as expected |

| Test Case DA-06-SATA48 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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 available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis: | Expected results achieved | |

## 5.2.22 DA-06-SCSI

| **Test Case DA-06-SCSI X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Mon Mar 26 16:00:16 2012 |
| Drives: | src(E0) dst (none) other (05-SATA) |
| Source Setup: | src hash (SHA1): < 4A6941F1337A8A22B10FC844B4D7FA6158BECB82 ><br>src hash (MD5): < A97C8F36B7AC9D5233B90AC09284F938 ><br>17938985 total sectors (9184760320 bytes)<br>Model (ATLAS10K2-TY092J) serial # (169028142436) |
| Log Highlights: | ====== Tool Settings: ======<br>hash MD-5<br>re-verify yes<br>start-sector 0<br>image-format e01<br>compression none<br><br>Write Block: none<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 9187008111 2012-03-26 21:23 da-06-scsi.e01<br>2 849 2012-03-26 21:26 da-06-scsi.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 2<br>Sectors 0-17938984<br>Destination: E:\da-06-scsi\da-06-scsi.e01<br>Model: QUANTUM ATLAS10K2-TY092J<br>Total capacity: 9,184,760,320 bytes = 8.6 GB<br>Sector count: 17,938,985<br>Hash of source data: A97C8F36B7AC9D5233B90AC09284F938 (MD5)<br><br>====== Source drive rehash ======<br>Rehash (SHA1) of source: 4A6941F1337A8A22B10FC844B4D7FA6158BECB82 |
| 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 |

| Test Case DA-06-SCSI X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | AO-22 Tool calculates hashes by block. | option not available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | as expected |
| Analysis: | Expected results achieved | |

### 5.2.23 DA-06-USB

| Test Case DA-06-USB X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed Feb 8 14:46:08 2012 |
| Drives: | src(63-FU2) dst (none) other (80-FU2) |
| Source Setup: | src hash (SHA256): <<br>EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D ><br>src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B ><br>src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC ><br>117304992 total sectors (60060155904 bytes)<br>Model (SP0612N ) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16<br>2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended<br>3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32<br>4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 004192902 sectors 2146765824 bytes<br>3 113097537 sectors 57905938944 bytes |
| Log Highlights: | ====== Tool Settings: ======<br>size 1024MB<br>hash MD5<br>re-verify yes<br>start-sector 0<br>image-format e01<br>compression none<br><br>Write Block: 18 UltraBlock USB (T8)<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 1074008478 2012-02-08 15:12 da-06-usb.e01<br>2 1074004597 2012-02-08 15:14 da-06-usb.e02<br>3 1074004597 2012-02-08 15:16 da-06-usb.e03<br>. . .<br>55 1074004597 2012-02-08 17:04 da-06-usb.e55<br>56 1004601449 2012-02-08 17:06 da-06-usb.e56<br>57 1862 2012-02-08 17:56 da-06-usb.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 7<br>Sectors 0-117304991<br>Destination: D:\da-06-usb\da-06-usb.e01 |

| **Test Case DA-06-USB X-Ways Forensics 16.2 SR-5** | |
|---|---|
| | Model: SAMSUNG SP0612N<br>Total capacity: 60,060,155,904 bytes = 55.9 GB<br>Sector count: 117,304,992<br>Sector count: 4,192,902<br>Hash of source data: EE217BC4FA4F3D1B4021D29B065AA9EC (MD5) |
| 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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

| | |
|---|---|
| Analysis: | Expected results achieved |

## 5.2.24 DA-07-CF

| **Test Case DA-07-CF X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu May 10 10:02:42 2012 |
| Drives: | src(C1-CF) dst (none) other (D6-THUMB) |
| Source Setup: | src hash (SHA256): <<br>C7CF0218222DF80D5316511D6814266C7FA507C13F795AD3D323BB73C1590D80 ><br>src hash (SHA1): < 5B8235178DF99FA307430C088F81746606638A0B ><br>src hash (MD5): < 776DF8B4D2589E21DEBCF589EDC16D78 ><br>503808 total sectors (257949696 bytes)<br>Model ( CF) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 778135908 1141509631 0357/116/40 0357/032/45 Boot 72 other<br>2 P 168689522 1936028240 0288/115/43 0367/114/50 Boot 65 other<br>3 P 1869881465 1936028192 0366/032/33 0357/032/43 Boot 79 other<br>4 P 2885681152 000055499 0372/097/50 0000/010/00 Boot 0D other<br>1 1141509631 sectors 584452931072 bytes<br>2 1936028240 sectors 991246458880 bytes<br>3 1936028192 sectors 991246434304 bytes<br>4 000055499 sectors 28415488 bytes |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br>image-format e01<br>compression none<br><br>Write Block: 7 UltraBlock Forensic Card Reader<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Image file segments ======<br>1 258015758 2012-05-10 14:25 da-07-cf.e01<br>2 1283 2012-05-10 14:25 da-07-cf.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Removable medium 7<br>Sectors 0-503807<br>Destination: I:\da-07-cf\da-07-cf.e01<br>Total capacity: 257,949,696 bytes = 246 MB<br>Hash of source data: 5B8235178DF99FA307430C088F81746606638A0B (SHA-1) |
| Results: | |

| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-01 Source acquired using interface AI. | as expected |
| AM-02 Source is type DS. | as expected |

| Test Case DA-07-CF X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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 available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | not checked |
| Analysis: | Expected results achieved | |

## 5.2.25 DA-07-EXFAT

| **Test Case DA-07-EXFAT X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | frank |
| Test Date: | Tue Jul 31 10:25:38 2012 |
| Drives: | src(49-SATA) dst (none) other (7A-SATA) |
| Source Setup: | src hash (SHA1): < 6EC98F42EB5914D1F9D1661C0BB0A3660569F95B ><br>src hash (MD5): < 30BAB74F67783C0555BCBD73DD4D0D5E ><br>156301488 total sectors (80026361856 bytes)<br>Model (ST380815AS ) serial # ( 5QZ5TD8Y)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000002048 010485760 0000/032/33 0652/213/09 07 NTFS<br>2 P 010490445 005863725 0653/000/01 1017/254/63 83 Linux<br>3 P 016354170 007807590 1018/000/01 1023/254/63 83 Linux<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 010485760 sectors 5368709120 bytes<br>2 005863725 sectors 3002227200 bytes<br>3 007807590 sectors 3997486080 bytes<br>49-SATAEXFAT-sha256 10485760<br>1309F5D1C2BC16E02F9C87A6AC8D79308F636B34DC002081757C4564A1373497<br>49-SATAEXFAT-sha1sum 10485760 3D44F34844E82F9DEDDD5CDC33E18EC066CF1EAB<br>49-SATAEXFAT-md5sum 10485760 E85782BF9358629D0115B70EEDE2C616 |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-256<br>re-verify yes<br>image-format e01<br>compression none<br><br>Write Block: 56 Tableau Forensic SATA/IDE Bridge<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Image file segments ======<br>1 5370023807 2012-07-31 16:15 da-07-exFAT.e01<br>2 819 2012-07-31 16:17 da-07-exFAT.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Drive F:<br>Sectors 0-10485759<br>Destination: D:\da-07-exFAT\da-07-exFAT.e01<br>Total capacity: 5,368,709,120 bytes = 5.0 GB<br>Hash of source data:<br>1309F5D1C2BC16E02F9C87A6AC8D79308F636B34DC002081757C4564A1373497 (SHA-256) |
| Results: | **Assertion & Expected Result** \| **Actual Result** |

| Test Case DA-07-EXFAT X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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 available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | Not checked |
| Analysis: | Expected results achieved | |

## 5.2.26 DA-07-F12

| **Test Case DA-07-F12 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu Apr 12 15:56:41 2012 |
| Drives: | src(01-IDE) dst (none) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F12-md5 16418303 E20E3CFEA80BF6F2D2AA75E829CC8CD9<br>01F12-sha1 16418303 F8B72B65436DE3BD394ACFF71D405D0389C0E9B7 |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br><br>image-format dd<br>compression none<br><br>Write Block: 4 FastBloc IDE |

**Test Case DA-07-F12 X-Ways Forensics 16.2 SR-5**

```
OS: Microsoft Windows [Version 6.1.7600]

====== Image file segments ======
1 16418304 2012-04-13 13:29 da-07-f12.001
2      864 2012-04-13 13:29 da-07-f12.txt

====== Extract from X-Ways logfile.txt file ======
Source: Drive E:
Sectors 0-32066
Destination: N:\da-07-f12\da-07-f12.001
Total capacity: 16,418,304 bytes = 15.7 MB
Hash of source data: F8B72B65436DE3BD394ACFF71D405D0389C0E9B7 (SHA-1)
```

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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results achieved

## 5.2.27 DA-07-F16

| **Test Case DA-07-F16 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Apr 13 11:01:11 2012 |
| Drives: | src(01-IDE) dst (none) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F16-md5 1077479423 8B24F3D793188AF2473F69B267AFDA42<br>01F16-sha1 1077479423 074BA831B10132F4BF9F86AFAB37CB7FEF482C7D |
| Log Highlights: | ====== Tool Settings: ======<br>hash MD-5<br>re-verify yes<br>image-format e01<br>compression none<br><br>Write Block: 4 FastBloc IDE |

**Test Case DA-07-F16 X-Ways Forensics 16.2 SR-5**

OS: Microsoft Windows [Version 6.1.7600]

```
====== Image file segments ======
1 1077745421 2012-04-13 09:35 da-07-f16.e01
2        905 2012-04-13 09:35 da-07-f16.txt

====== Extract from X-Ways logfile.txt file ======
Source: Drive F:
Sectors 0-2104451
Destination: N:\da-07-f16\da-07-f16.e01
Total capacity: 1,077,479,424 bytes = 1.0 GB
Hash of source data: 8B24F3D793188AF2473F69B267AFDA42 (MD5)
```

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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results achieved

## 5.2.28 DA-07-F32

| **Test Case DA-07-F32 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Apr 13 11:07:11 2012 |
| Drives: | src(01-IDE) dst (none) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F32-md5 4301789183 BFF7DC64C54339DA2A9D7972C076B514<br>01F32-sha1 4301789183 B861D9E999F39750B484FFB693FF69DEC090C6B8<br>01F32-sha256 4301789183<br>CAE3A4CC33D59548063255D2AA4016940AC712DD96985AD9B94FF271CC3E943E |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-256<br>re-verify yes<br>image-format dd<br>compression none |

**Test Case DA-07-F32 X-Ways Forensics 16.2 SR-5**

```
Write Block: 4 FastBloc IDE

OS: Microsoft Windows [Version 6.1.7600]

====== Image file segments ======
1 4301789184 2012-04-13 09:42 da-07-f32.001
2        980 2012-04-13 09:44 da-07-f32.txt

====== Extract from X-Ways logfile.txt file ======
Source: Drive G:
Sectors 0-8401931
Destination: N:\da-07-f32\da-07-f32.001
Total capacity: 4,301,789,184 bytes = 4.0 GB
Hash of source data:
CAE3A4CC33D59548063255D2AA4016940AC712DD96985AD9B94FF271CC3E943E (SHA-256)
```

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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results achieved

## 5.2.29 DA-07-F32X

| **Test Case DA-07-F32X X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Apr 13 11:10:01 2012 |
| Drives: | src(01-IDE) dst (none) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F32X-md5 10742183423 B5BFD9CE3990C577EF89C5AFB925F947<br>01F32X-sha1 10742183423 30BA6CF583A176C5DB533E3A2F57BFD5A4A870C1 |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br>image-format e01<br>compression none<br><br>Write Block: 4 FastBloc IDE |

**Test Case DA-07-F32X X-Ways Forensics 16.2 SR-5**

```
OS: Microsoft Windows [Version 6.1.7600]

====== Image file segments ======
1 10744812123 2012-04-13 09:57 da-07-32x.e01
2         939 2012-04-13 10:03 da-07-32x.txt

====== Extract from X-Ways logfile.txt file ======
Source: Drive D:
Sectors 0-20980826
Destination: N:\da-07-32x\da-07-32x.e01
Total capacity: 10,742,183,424 bytes = 10.0 GB
Hash of source data: 30BA6CF583A176C5DB533E3A2F57BFD5A4A870C1 (SHA-1)
```

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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results achieved

## 5.2.30 DA-07-NT

| **Test Case DA-07-NT X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Fri Apr 13 11:12:14 2012 |
| Drives: | src(01-IDE) dst (none) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01NT-md5 14205026303 92B27B30BEE8B0FFBA8C660FA1590D49 |
| Log Highlights: | ====== Tool Settings: ======<br>hash MD-5<br>re-verify yes<br>image-format dd<br>compression none<br><br>Write Block: 4 FastBloc IDE<br><br>OS: Microsoft Windows [Version 6.1.7600] |

| Test Case DA-07-NT X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | ====== Image file segments ======<br>1 14205022208 2012-04-13 10:19 da-07-nt.001<br>2 805 2012-04-13 10:25 da-07-nt.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Drive H:<br>Sectors 0-27744183<br>Destination: N:\da-07-nt\da-07-nt.001<br>Total capacity: 14,205,022,208 bytes = 13.2 GB<br>Hash of source data: 28A3A4330007F75B8AFA99D38FFCD257 (MD5) |
| 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. | last 8 sectors 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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

| | |
|---|---|
| Analysis: | Expected results not achieved |

## 5.2.31 DA-07-NT-ALT

| Test Case DA-07-NT-ALT X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | Jrr |
| Test Host: | Frank |
| Test Date: | Fri Jul 12 09:37:29 2013 |
| Drives: | src(43) dst (none) other (0C-FU) |
| Source Setup: | src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 ><br>src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 ><br>78125000 total sectors (40000000000 bytes)<br>Model (0BB-75JHC0 ) serial # ( WD-WMAMC46588)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16 |

**Test Case DA-07-NT-ALT X-Ways Forensics 16.2 SR-5**

```
 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
01NT-md5 14205026303 5D42FA317C802ACFEF2D313092D7411E
```

Log Highlights:

```
====== Tool Settings: ======
hash MD-5
image-format dd
compression none

Write Block: 56 Tableau Forensic SATA/IDE Bridge

OS: Microsoft Windows XP [Version 5.1.2600]

====== Image file segments ======
1 2097152000 2013-06-26 14:09 Hard disk 6, Partition 8.001
2 2097152000 2013-06-26 14:11 Hard disk 6, Partition 8.002
3 2097152000 2013-06-26 14:13 Hard disk 6, Partition 8.003
4 2097152000 2013-06-26 14:14 Hard disk 6, Partition 8.004
5 2097152000 2013-06-26 14:16 Hard disk 6, Partition 8.005
6 2097152000 2013-06-26 14:18 Hard disk 6, Partition 8.006
7 1605663744 2013-06-26 14:19 Hard disk 6, Partition 8.007

====== Extract from X-Ways logfile.txt file ======
Source: Hard disk 6, Partition 8
Sectors 0-27712061
Destination: L:\xways16.2_re-run\da-07-nt\Hard disk 6, Partition 8.001
Total capacity: 14,188,575,744 bytes = 13.2 GB
Hash of source data: 5D42FA317C802ACFEF2D313092D7411E (MD5)
```

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 available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

Analysis: Expected results achieved

## 5.2.32 DA-07-THUMB

<table>
<tr><th colspan="2">Test Case DA-07-THUMB X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-07 Acquire a digital source of type DS to an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Fri Apr 20 10:53:33 2012</td></tr>
<tr><td>Drives:</td><td>src(D5-THUMB) dst (none) other (D6-THUMB)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # ()</td></tr>
<tr><td>Log Highlights:</td><td>====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br>image-format dd<br>compression none<br><br>Write Block: 18 Tableau Forensic USB Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 258998272 2012-04-20 17:24 da-07-thumb.001<br>2 1261 2012-04-20 17:24 da-07-thumb.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Removable medium 7<br>Sectors 0-505855<br>Destination: D:\da-07-thumb\da-07-thumb.001<br>Total capacity: 258,998,272 bytes = 247 MB<br>Hash of source data: D68520EF74A336E49DCCF83815B7B08FDC53E38A (SHA-1)</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<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>as expected</td></tr>
<tr><td>AM-05 An image is created on file system type FS.</td><td>as expected</td></tr>
<tr><td>AM-06 All visible sectors acquired.</td><td>as expected</td></tr>
<tr><td>AM-08 All sectors accurately acquired.</td><td>as expected</td></tr>
<tr><td>AO-01 Image file is complete and accurate.</td><td>as expected</td></tr>
<tr><td>AO-05 Multifile image created.</td><td>as expected</td></tr>
<tr><td>AO-22 Tool calculates hashes by block.</td><td>option not available</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
<tr><td>AO-24 Source is unchanged by acquisition.</td><td>not checked</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

### 5.2.33 DA-09

| **Test Case DA-09 X-Ways Forensics 16.2 SR-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.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed Apr 25 14:29:13 2012 |
| Drives: | src(ED-BAD-CPR2) dst (50-IDE) other (none) |
| Source Setup: | No before hash for ED-BAD-CPR2<br><br>Known Bad Sector List for ED-CPR-BAD-2<br><br>Manufacturer: Maxtor<br>Model: DiamondMax Plus 9<br>Serial Number: Y22HJL7C<br>Capacity: 60GB<br>Interface: SATA<br><br>468 faulty sectors<br>1344585, 2594747, 2595500, 2599086, 2599839, 2809909,<br>2809910, 3422895, 3422896, 4116750, 4120336, 4120337,<br>4121089, 4121090, 4696046, 4698397, 4703710, 4707186,<br>4708105, 4711580, 4712499, 4714850, 4715770, 4719245,<br>4723639, 4723640, 4724558, 4724559, 4728034, 4728953,<br>4731304, 4732223, 4735699, 4740093, 4741012, 4743363,<br>4745407, 4748677, 4752152, 4756547, 4757466, 4759817,<br>4761860, 4761861, 4764211, 4764212, 4765130, 4765131,<br>4768606, 4769525, 4773001, 4773920, 4776271, 4777190,<br>4780665, 4781584, 5446946, 5448990, 5451341, 5452260,<br>5620120, 5623595, 5623596, 5623597, 5624514, 5624515,<br>5624516, 5626865, 5626866, 5626867, 5628909, 5631260,<br>5632179, 5635655, 5636574, 5640049, 6021518, 6023869,<br>6024788, 6028263, 7662307, 8340091, 8340092, 12178157,<br>12179060, 12181370, 12182273, 12185687, 12186590, 12340277,<br>13016906, 13049575, 13050477, 13050478, 14000022, 14000762,<br>14004285, 14041240, 17135988, 17723611, 17876726, 18161032,<br>18760155, 20090856, 20094289, 20095011, 20661414, 21693295,<br>21694174, 21697502, 22730717, 22838734, 22838735, 24596104,<br>24596105, 24596106, 26791779, 27686030, 28080041, 28081995,<br>29555383, 29655054, 30488210, 30488211, 32215323, 32218669,<br>33523139, 33991449, 35267814, 37975363, 38134596, 38136734,<br>38137571, 38137572, 38207258, 38207259, 38542983, 38567425,<br>38568109, 39421072, 39421909, 39425071, 40273501, 42836488,<br>42837172, 42843548, 42847497, 42851446, 42854557, 43505180,<br>43508342, 43872574, 43873411, 45217120, 45217121, 45777316,<br>46221189, 46296219, 46296220, 46528674, 46955925, 47093653, |

| Test Case DA-09 X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | 48537000, 48537662, 49911188, 49911189, 51017721, 51769307,<br>51769969, 51994516, 51994517, 53855354, 55793018, 55793019,<br>57316559, 57320313, 60571670, 60571671, 60571672, 60952349,<br>60952350, 60952993, 61535962, 61535963, 61535964, 62592910,<br>62593672, 62596563, 62597325, 62600215, 63140751, 63140752,<br>63141513, 63141514, 63144404, 63226363, 63229253, 63670246,<br>63972517, 63975497, 65576815, 65925948, 66146215, 67860503,<br>67860504, 68711104, 69100751, 69176705, 69189596, 69189597,<br>69189598, 69190358, 69190359, 69190360, 69974439, 69975201,<br>70656792, 72217315, 72801392, 72992581, 72992582, 73626901,<br>73626902, 75004819, 78164515, 78167178, 78167885, 78307369,<br>78415033, 78415034, 78693137, 79145838, 79146544, 79146545,<br>79146546, 79744714, 79745420, 79748084, 79748790, 79901007,<br>80691204, 80691205, 82083870, 82083871, 82083872, 83739051,<br>83739052, 84411502, 84553520, 85181194, 85418740, 87197252,<br>88020545, 88020546, 88021216, 88023752, 88024422, 88071013,<br>88071014, 88755730, 89294003, 92741348, 92741349, 92743744,<br>92743745, 94017998, 95929572, 95929573, 97369221, 97485310,<br>99685572, 100687317, 100689593, 102205339, 103403045,<br>104768238, 105074641, 105638643, 106115226, 106115791,<br>106117947, 106118512, 106120668, 106121233, 106122698,<br>106123954, 106123955, 106125419, 106125420, 106125984,<br>106125985, 106128141, 106128706, 106186051, 106936608,<br>107133037, 107276378, 108007258, 109270108, 109270673,<br>109272829, 109273394, 109275550, 109319902, 110072175,<br>111250371, 111251549, 111485059, 112587333, 112588682,<br>112588683, 112588684, 114286586, 114359887, 115110935,<br>116807008, 116807009, 116808918, 117175664, 117177512,<br>117178002, 117179850, 117180340, 117180341, 117181588,<br>117182678, 117182679, 117182680, 117183926, 117184417,<br>117186264, 117186265, 117186755, 117188602, 117188603,<br>117188604, 117189093, 117190341, 117193170, 117195017,<br>117195018, 117195508, 117197355, 117197356, 117197357,<br>117197846, 117199094, 117199584, 117201432, 117201922,<br>117201923, 117203770, 117204260, 117204261, 117204262,<br>117205508, 117206599, 117207846, 117207847, 117207848,<br>117208337, 117210185, 117210675, 117212523, 117213013,<br>117213014, 117214261, 117215352, 117217090, 117218938,<br>117219428, 117219429, 117221276, 117221766, 117221767,<br>117221768, 117223014, 117223505, 117225352, 117225353,<br>117225354, 117225843, 117227691, 117228181, 117229429,<br>117230519, 117230520, 117231767, 117232258, 117234105,<br>117234106, 117234596, 117236444, 117236934, 117238182,<br>117239272, 117239273, 117240520, 117241011, 117242858,<br>117242859, 117245687, 117245688, 117246935, 117247426,<br>117249273, 117249274, 117249764, 117251612, 117252102,<br>117253350, 117254440, 117254441, 117255688, 117256179,<br>117258026, 117258027, 117258517, 117260365, 117260855,<br>117262103, 117263193, 117263194, 117264441, 117264932,<br>117266779, 117266780, 117267270, 117269118, 117269608,<br>117270856, 117271946, 117271947, 117275533, 117276023,<br>117277871, 117278361, 117278362, 117278363, 117279609,<br>117280100, 117281947, 117281948, 117282438, 117284286,<br>117284776, 117286024, 117287114, 117287115, 117287116,<br>117288362, 117288853, 117290700, 117290701, 117290702,<br>117291191, 117293039, 117293529, 117294777, 117295867,<br>117295868, 117295869, 117297115, 117297606, 117299453,<br>117299454, 117299455, 119655644 |
| Log Highlights: | ====== Destination drive setup ======<br>156301488 sectors wiped with 50<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 120103200<br>Sectors match: 120102732<br>Sectors differ: 468<br>Bytes differ: 239616<br>Diffs range 1344585, 2594747, 2595500, 2599086, 2599839,<br>2809909-2809910, 3422895-3422896, 4116750, 4120336-4120337,<br>4121089-4121090, 4696046, 4698397, 4703710, 4707186, |

| Test Case DA-09 X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | 4708105, 4711580, 4712499, 4714850, 4715770, 4719245,<br>4723639-4723640, 4724558-4724559, 4728034, 4728953,<br>4731304, 4732223, 4735699, 4740093, 4741012, 4743363,<br>4745407, 4748677, 4752152, 4756547, 4757466, 4759817,<br>4761860-4761861, 4764211-4764212, 4765130-4765131,<br>4768606, 4769525, 4773001, 4773920, 4776271, 4777190,<br>4780665, 4781584, 5446946, 5448990, 5451341, 5452260,<br>5620120, 5623595-5623597, 5624514-5624516, 5626865-5626867,<br>5628909, 5631260, 5632179, 5635655, 5636574, 5640049,<br>6021518, 6023869, 6024788, 6028263, 7662307, 8340091-8340092,<br>12178157, 12179060, 12181370, 12182273, 12185687, 12186590,<br>12340277, 13016906, 13049575, 13050477-13050478, 14000022,<br>14000762, 14004285, 14041240, 17135988, 17723611, 17876726,<br>18161032, 18760155, 20090856, 20094289, 20095011, 20661414,<br>21693295, 21694174, 21697502, 22730717, 22838734-22838735,<br>24596104-24596106, 26791779, 27686030, 28080041, 28081995,<br>29555383, 29655054, 30488210-30488211, 32215323, 32218669,<br>33523139, 33991449, 35267814, 37975363, 38134596, 38136734,<br>38137571-38137572, 38207258-38207259, 38542983, 38567425,<br>38568109, 39421072, 39421909, 39425071, 40273501, 42836488,<br>42837172, 42843548, 42847497, 42851446, 42854557, 43505180,<br>43508342, 43872574, 43873411, 45217120-45217121, 45777316,<br>46221189, 46296219-46296220, 46528674, 46955925, 47093653,<br>48537000, 48537662, 49911188-49911189, 51017721, 51769307,<br>51769969, 51994516-51994517, 53855354, 55793018-55793019,<br>57316559, 57320313, 60571670-60571672, 60952349-60952350,<br>60952993, 61535962-61535964, 62592910, 62593672, 62596563,<br>62597325, 62600215, 63140751-63140752, 63141513-63141514,<br>63144404, 63226363, 63229253, 63670246, 63972517, 63975497,<br>65576815, 65925948, 66146215, 67860503-67860504, 68711104,<br>69100751, 69176705, 69189596-69189598, 69190358-69190360,<br>69974439, 69975201, 70656792, 72217315, 72801392, 72992581-72992582,<br>73626901-73626902, 75004819, 78164515, 78167178, 78167885,<br>78307369, 78415033-78415034, 78693137, 79145838, 79146544-79146546,<br>79744714, 79745420, 79748084, 79748790, 79901007, 80691204-80691205,<br>82083870-82083872, 83739051-83739052, 84411502, 84553520,<br>85181194, 85418740, 87197252, 88020545-88020546, 88021216,<br>88023752, 88024422, 88071013-88071014, 88755730, 89294003,<br>92741348-92741349, 92743744-92743745, 94017998, 95929572-95929573,<br>97369221, 97485310, 99685572, 100687317, 100689593,<br>102205339, 103403045, 104768238, 105074641, 105638643,<br>106115226, 106115791, 106117947, 106118512, 106120668,<br>106121233, 106122698, 106123954-106123955, 106125419-106125420,<br>106125984-106125985, 106128141, 106128706, 106186051,<br>106936608, 107133037, 107276378, 108007258, 109270108,<br>109270673, 109272829, 109273394, 109275550, 109319902,<br>110072175, 111250371, 111251549, 111485059, 112587333,<br>112588682-112588684, 114286586, 114359887, 115110935,<br>116807008-116807009, 116808918, 117175664, 117177512,<br>117178002, 117179850, 117180340-117180341, 117181588,<br>117182678-117182680, 117183926, 117184417, 117186264-117186265,<br>117186755, 117188602-117188604, 117189093, 117190341,<br>117193170, 117195017-117195018, 117195508, 117197355-117197357,<br>117197846, 117199094, 117199584, 117201432, 117201922-117201923,<br>117203770, 117204260-117204262, 117205508, 117206599,<br>117207846-117207848, 117208337, 117210185, 117210675,<br>117212523, 117213013-117213014, 117214261, 117215352,<br>117217090, 117218938, 117219428-117219429, 117221276,<br>117221766-117221768, 117223014, 117223505, 117225352-117225354,<br>117225843, 117227691, 117228181, 117229429, 117230519-117230520,<br>117231767, 117232258, 117234105-117234106, 117234596,<br>117236444, 117236934, 117238182, 117239272-117239273,<br>117240520, 117241011, 117242858-117242859, 117245687-117245688,<br>117246935, 117247426, 117249273-117249274, 117249764,<br>117251612, 117252102, 117253350, 117254440-117254441,<br>117255688, 117256179, 117258026-117258027, 117258517,<br>117260365, 117260855, 117262103, 117263193-117263194,<br>117264441, 117264932, 117266779-117266780, 117267270,<br>117269118, 117269608, 117270856, 117271946-117271947,<br>117275533, 117276023, 117277871, 117278361-117278363, |

**Test Case DA-09 X-Ways Forensics 16.2 SR-5**

```
117279609, 117280100, 117281947-117281948, 117282438,
117284286, 117284776, 117286024, 117287114-117287116,
117288362, 117288853, 117290700-117290702, 117291191,
117293039, 117293529, 117294777, 117295867-117295869,
117297115, 117297606, 117299453-117299455, 119655644
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
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


====== Tool Settings: ======
fill none
start-sector 0

Write Block: 56 Tableau Forensic SATA/IDE Bridge

OS: Microsoft Windows XP [Version 5.1.2600]

====== Extract from X-Ways logfile.txt file ======
Maxtor 6Y060M0 --> WDC WD800JB-00JJC0
Sector 0 --> Sector 0
120,103,200 Sectors
Sectors that could not be read:
1,344,585
2,594,747
2,595,500
2,599,086
2,599,839
    . . .
117,297,606
117,299,453
117,299,454
117,299,455
119,655,644

04/26/2012, 15:23:09.1
120,102,732 sector(s) successfully copied.
468 bad source sectors encountered.
Corresponding destination sectors filled with: UNREADABLESECTOR
====== Summary of Sectors not acquired ======
3 different run lengths observed in 366 runs
287 runs of length 1
56 runs of length 2
23 runs of length 3
468 sectors differ
```

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 |
| AM-09 Error logged. | as expected |
| AM-10 Benign fill replaces inaccessible sectors. | 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 available |
| AO-23 Logged information is correct. | as expected |

| Test Case DA-09 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | AO-24 Source is unchanged by acquisition. | not checked |
| Analysis: | Expected results achieved | |

## 5.2.34 DA-10-COMPRESSED

| **Test Case DA-10-COMPRESSED X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-10 Acquire a digital source to an image file in an alternate format. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>AO-02 If an image file format is specified, the tool creates an image file in the specified format.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue May 15 14:05:15 2012 |
| Drives: | src(D5-THUMB) dst (none) other (D6-THUMB) |
| Source Setup: | src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # () |
| Log Highlights: | ====== Tool Settings: ======<br>hash SHA-1<br>re-verify yes<br>image-format e01<br>compression normal<br><br>Write Block: 18 Tableau Forensic USB Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 3819166 2012-05-15 14:26 da-10-compressed.e01<br>2 1296 2012-05-15 14:26 da-10-compressed.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Removable medium 8<br>Sectors 0-505855<br>Destination: J:\da-10-compressed\da-10-compressed.e01<br>Total capacity: 258,998,272 bytes = 247 MB<br>Hash of source data: D68520EF74A336E49DCCF83815B7B08FDC53E38A (SHA-1) |
| 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-02 Image file in specified format. | as expected |
| AO-05 Multifile image created. | as expected |
| AO-22 Tool calculates hashes by block. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

| Test Case DA-10-COMPRESSED X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | |
| Analysis: | Expected results achieved |

## 5.2.35 DA-10-E01

| **Test Case DA-10-E01 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-10 Acquire a digital source to an image file in an alternate format. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>AO-02 If an image file format is specified, the tool creates an image file in the specified format.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Mon May 14 16:18:44 2012 |
| Drives: | src(D5-THUMB) dst (none) other (D6-THUMB) |
| Source Setup: | src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # () |
| Log Highlights: | ====== Tool Settings: ======<br>hash MD5<br>re-verify yes<br>image-format e01<br>compression none<br><br>Write Block: 18 Tableau Forensic USB Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 259064634 2012-05-15 14:20 da-10-e01.e01<br>2 1239 2012-05-15 14:20 da-10-e01.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Removable medium 8<br>Sectors 0-505855<br>Destination: J:\da-10-e01\da-10-e01.e01<br>Total capacity: 258,998,272 bytes = 247 MB<br>Hash of source data: C843593624B2B3B878596D8760B19954 (MD5) |
| 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-02 Image file in specified format. | as expected |
| AO-05 Multifile image created. | as expected |
| AO-22 Tool calculates hashes by block. | option not available |
| AO-23 Logged information is correct. | as expected |
| AO-24 Source is unchanged by acquisition. | not checked |

| Test Case DA-10-E01 X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | |
| Analysis: | Expected results achieved |

## 5.2.36 DA-10-ENCRYPTED

| **Test Case DA-10-ENCRYPTED X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-10 Acquire a digital source to an image file in an alternate format. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>AO-02 If an image file format is specified, the tool creates an image file in the specified format.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue May 15 10:40:11 2012 |
| Drives: | src(D5-THUMB) dst (none) other (D6-THUMB) |
| Source Setup: | src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # () |
| Log Highlights: | ====== Tool Settings: ======<br>hash MD5<br>re-verify yes<br>image-format e01<br>compression none<br>encrypted yes<br><br>Write Block: 18 Tableau Forensic USB Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments ======<br>1 259064803 2012-05-16 14:14 da-10-encrypted.e01<br>2 1082 2012-05-16 14:14 da-10-encrypted.txt<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Removable medium 8<br>Sectors 0-505855<br>Destination: J:\da-10-encrypted\da-10-encrypted.e01<br>Total capacity: 258,998,272 bytes = 247 MB<br>Hash of source data: C843593624B2B3B878596D8760B19954 (MD5) |
| 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-02 Image file in specified format. | as expected |
| AO-05 Multifile image created. | as expected |
| AO-22 Tool calculates hashes by block. | option not available |
| AO-23 Logged information is correct. | as expected |

| Test Case DA-10-ENCRYPTED X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | AO-24 Source is unchanged by acquisition. | not checked |
| Analysis: | Expected results achieved | |

## 5.2.37 DA-13

| **Test Case DA-13 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-13 Create an image file where there is insufficient space on a single volume, and use destination device switching to continue on another volume. |
| Assertions: | AM-01 The tool uses access interface SRC-AI to access the digital source.<br>AM-02 The tool acquires digital source DS.<br>AM-03 The tool executes in execution environment XE.<br>AM-05 If image file creation is specified, the tool creates an image file on file system type FS.<br>AM-06 All visible sectors are acquired from the digital source.<br>AM-08 All sectors acquired from the digital source are acquired accurately.<br>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.<br>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.<br>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.<br>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.<br>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.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.<br>AO-24 If the tool executes in a forensically safe execution environment, the digital source is unchanged by the acquisition process. |
| Tester Name: | jrr |
| Test Host: | frank |
| Test Date: | Fri Jun 14 11:04:14 2013 |
| Drives: | src(01-SATA) dst (none) other (02-IDE) |
| Source Setup: | src hash (SHA256): <<br>1AA01FEAE55F5CD55185D2B1A1359B3F913E7093FEF1D1ADA220CAC456BA40D8 ><br>src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C ><br>src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 ><br>156301488 total sectors (80026361856 bytes)<br>Model (0JD-32HKA0 ) serial # (WD-WMAJ91448529) |
| Log Highlights: | ====== Tool Settings: ======<br>image-format e01<br>compression none<br><br>Write Block: 56 Forensic SATA/IDE Bridge<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Image file segments (First destination) ======<br>1 39946879853 2013-06-14 18:14 da-13.e01<br>2 678 2013-06-17 14:26 da-13.txt<br><br>====== Image file segments (Second destination) ======<br>3 40099048957 2013-06-17 14:26 da-13.e02<br><br>====== Extract from X-Ways logfile.txt file ======<br>Source: Hard disk 8<br>Sectors 0-156301487<br>Destination: G:\da-13.e01<br>Model: WDC WD800JD-32HKA0<br>Total capacity: 80,026,361,856 bytes = 74.5 GB<br>Sector count: 156,301,488<br>Hash of source data: 0A49B13D91FA9DA87CEEE9D006CB6FD6 (MD5) |
| Results: | **Assertion & Expected Result** / **Actual Result**<br>AM-01 Source acquired using interface AI. / as expected |

| Test Case DA-13 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | 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-04 User notified if space exhausted. | as expected |
| | AO-05 Multifile image created. | as expected |
| | AO-10 Image file continued on new device. | as expected |
| | AO-22 Tool calculates hashes by block. | option not available |
| | AO-23 Logged information is correct. | as expected |
| | AO-24 Source is unchanged by acquisition. | not checked |
| Analysis: | Expected results achieved | |

## 5.2.38 DA-14-ATA28

| **Test Case DA-14-ATA28 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Mon Apr 2 10:23:02 2012 |
| Drives: | src(43) dst (50-SATA) other (58-IDE) |
| Source Setup: | src hash (SHA256): <<br>2658F47603DE6B1D883B64823E9733F578658D08D06A4BB8C053C4F57BDC615E ><br>src hash (SHA1): < 888E2E7F7AD237DC7A732281DD93F325065E5871 ><br>src hash (MD5): < BC39C3F7EE7A50E77B9BA1E65A5AEEF7 ><br>78125000 total sectors (40000000000 bytes)<br>Model (0BB-75JHC0 ) serial # ( WD-WMAMC46588)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057143205 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027712062 sectors 14188575744 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>156301488 sectors wiped with 50<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 78125000<br>Sectors match: 78125000<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (78125000) has 78176488 fewer sectors than destination (156301488)<br>Zero fill: 0<br>Src Byte fill (43): 0<br>Dst Byte fill (50): 78176488<br>Other fill: 0 |

<table>
<tr><th colspan="2">Test Case DA-14-ATA28 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td></td><td>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 78125000-156301487<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-06-ata28\da-06-ata28.e01] --> ST380815AS<br>Sector 0 --> Sector 0<br>78,125,000 Sectors<br>78,125,000 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td><table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table></td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.39 DA-14-ATA48

**Test Case DA-14-ATA48 X-Ways Forensics 16.2 SR-5**

| | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue Jun 12 10:10:44 2012 |
| Drives: | src(4E) dst (2C-SATA) other (5A-SATA) |
| Source Setup: | src hash (SHA1): < 7DDFF1A74B2E2B7E7EE43C41CD9066E27986644D ><br>src hash (MD5): < 62C9436930204E0F38921771ACA1BB88 ><br>488397168 total sectors (250059350016 bytes)<br>30400/254/63 (max cyl/hd values)<br>30401/255/63 (number of cyl/hd)<br>IDE disk: Model (WDC WD2500JB-22FUA0) serial # (WD-WMAEP1925256)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 488375937 0000/001/01 1023/254/63 Boot 07 NTFS<br>2 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>3 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 488375937 sectors 250048479744 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>488397168 sectors wiped with 2C<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 488397168<br>Sectors match: 488397168<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>====== Extract from X-Ways logfile.txt file ======<br>J:\da-06-ata48\da-06-ata48.001 --> WDC WD2500AAKS-00VSA0<br>Beginning of file --> Sector 0<br>488,397,168 Sectors<br>488,397,168 sector(s) successfully copied. |
| Results: | |
| Analysis: | Expected results achieved |

| Assertion & Expected Result | Actual Result |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | 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-23 Logged information is correct. | as expected |

## 5.2.40 DA-14-CF

| **Test Case DA-14-CF X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu May 10 10:48:37 2012 |
| Drives: | src(C1-CF) dst (C2-CF) other (D6-THUMB) |
| Source Setup: | src hash (SHA256): <<br>C7CF0218222DF80D5316511D6814266C7FA507C13F795AD3D323BB73C1590D80 ><br>src hash (SHA1): < 5B8235178DF99FA307430C088F81746606638A0B ><br>src hash (MD5): < 776DF8B4D2589E21DEBCF589EDC16D78 ><br>503808 total sectors (257949696 bytes)<br>Model ( CF) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 778135908 1141509631 0357/116/40 0357/032/45 Boot 72 other<br>2 P 168689522 1936028240 0288/115/43 0367/114/50 Boot 65 other<br>3 P 1869881465 1936028192 0366/032/33 0357/032/43 Boot 79 other<br>4 P 2885681152 000055499 0372/097/50 0000/010/00 Boot 0D other<br>1 1141509631 sectors 584452931072 bytes<br>2 1936028240 sectors 991246458880 bytes<br>3 1936028192 sectors 991246434304 bytes<br>4 000055499 sectors 28415488 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>503808 sectors wiped with C2<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 503808<br>Sectors match: 503808<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows [Version 6.1.7600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[I:\da-07-cf\da-07-cf.e01] --> LEXAR ATA FLASH<br>Sector 0 --> Sector 0<br>503,808 Sectors<br>503,808 sector(s) successfully copied. |
| Results: | |

| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | 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-23 Logged information is correct. | as expected |

| Test Case DA-14-CF X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | |
| Analysis: | Expected results achieved |

## 5.2.41 DA-14-COMPRESSED

<table>
<tr><th colspan="2">Test Case DA-14-COMPRESSED X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Tue May 15 16:16:54 2012</td></tr>
<tr><td>Drives:</td><td>src(D5-THUMB) dst (D4-THUMB) other (D6-THUMB)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # ()</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>505856 sectors wiped with D4<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 505856<br>Sectors match: 505856<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[J:\da-10-compressed\da-10-compressed.e01] --> CRUCIAL usb2.0Flash Disk<br>Sector 0 --> Sector 0<br>505,856 Sectors<br>505,856 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

### 5.2.42 DA-14-E01

<table>
<tr><th colspan="2">Test Case DA-14-E01 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Tue May 15 11:55:08 2012</td></tr>
<tr><td>Drives:</td><td>src(D5-THUMB) dst (D4-THUMB) other (D6-THUMB)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # ()</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>505856 sectors wiped with D4<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 505856<br>Sectors match: 505856<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[J:\da-10-e01\da-10-e01.e01] --> CRUCIAL usb2.0Flash Disk<br>Sector 0 --> Sector 0<br>505,856 Sectors<br>505,856 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

### 5.2.43 DA-14-ENCRYPTED

<table>
<tr><th colspan="2">Test Case DA-14-ENCRYPTED X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Wed May 16 10:40:26 2012</td></tr>
<tr><td>Drives:</td><td>src(D5-THUMB) dst (D4-THUMB) other (D6-THUMB)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # ()</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>505856 sectors wiped with D4<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 505856<br>Sectors match: 505856<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[J:\da-10-encrypted\da-10-encrypted.e01] --> CRUCIAL usb2.0Flash Disk<br>Sector 0 --> Sector 0<br>505,856 Sectors<br>505,856 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.44 DA-14-EXFAT

| **Test Case DA-14-EXFAT X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | frank |
| Test Date: | Wed Aug 1 09:19:57 2012 |
| Drives: | src(49-SATA) dst (F9) other (7A-SATA) |
| Source Setup: | src hash (SHA1): < 6EC98F42EB5914D1F9D1661C0BB0A3660569F95B ><br>src hash (MD5): < 30BAB74F67783C0555BCBD73DD4D0D5E ><br>156301488 total sectors (80026361856 bytes)<br>Model (ST380815AS ) serial # ( 5QZ5TD8Y)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000002048 010485760 0000/032/33 0652/213/09 07 NTFS<br>2 P 010490445 005863725 0653/000/01 1017/254/63 83 Linux<br>3 P 016354170 007807590 1018/000/01 1023/254/63 83 Linux<br>4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 010485760 sectors 5368709120 bytes<br>2 005863725 sectors 3002227200 bytes<br>3 007807590 sectors 3997486080 bytes<br>49-SATAEXFAT-sha256 10485760<br>1309F5D1C2BC16E02F9C87A6AC8D79308F636B34DC002081757C4564A1373497<br>49-SATAEXFAT-sha1sum 10485760 3D44F34844E82F9DEDDD5CDC33E18EC066CF1EAB<br>49-SATAEXFAT-md5sum 10485760 E85782BF9358629D0115B70EEDE2C616<br>Excess destination partition sectors hash:<br>SHA1 5368709120 - 10737418239 = 51EBA3E9E7B1A11A8E7FDCACCD5BEA820E30D9A6 |
| Log Highlights: | ====== Destination drive setup ======<br>40188960 sectors wiped with F9<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 10485760<br>Sectors match: 10485757<br>Sectors differ: 3<br>Bytes differ: 3<br>Diffs range: 1453247, 3672132, 4659012<br>Source (10485760) has 29698048 fewer sectors than destination (40183808)<br>Zero fill: 0<br>Src Byte fill (49): 0<br>Dst Byte fill (F9): 29698048<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 10485760-40183807<br>Other fill range:<br>Other not filled range:<br>run start Fri Aug 3 14:36:45 2012<br>run finish Fri Aug 3 14:49:54 2012<br>elapsed time 0:13:9<br>Normal exit<br><br>====== Tool Settings: ======<br>fill none<br><br>OS: Microsoft Windows [Version 6.1.7600] |

| **Test Case DA-14-EXFAT X-Ways Forensics 16.2 SR-5** | |
|---|---|
| | ====== Extract from X-Ways logfile.txt file ======<br>[E:\da-07-exFAT\da-07-exFAT.e01] --> Drive D:<br>Sector 0 --> Sector 0<br>10,485,760 Sectors<br>10,485,760 sector(s) successfully copied. |
| Results: | |

| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | as expected |
| AO-13 Clone created using interface AI. | as expected |
| AO-14 An unaligned clone is created. | 3 sectors differ |
| AO-17 Excess sectors are unchanged. | as expected |
| AO-23 Logged information is correct. | as expected |

| | |
|---|---|
| Analysis: | Expected results not achieved |

## 5.2.45 DA-14-F12

| **Test Case DA-14-F12 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue May 22 14:49:07 2012 |
| Drives: | src(01-IDE) dst (57-IDE) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F12-md5 16418303 E20E3CFEA80BF6F2D2AA75E829CC8CD9<br>01F12-sha1 16418303 F8B72B65436DE3BD394ACFF71D405D0389C0E9B7 |
| Log Highlights: | ====== Destination drive setup ======<br>80043264 sectors wiped with 57<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 32067<br>Sectors match: 32067<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range:<br>run start Wed May 23 10:16:17 2012<br>run finish Wed May 23 10:16:43 2012<br>elapsed time 0:0:26<br>Normal exit |

<table>
<tr><th colspan="2">Test Case DA-14-F12 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td></td><td>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>D:\da-07-f12\da-07-f12.001 --> Drive F:<br>Beginning of file --> Sector 0<br>32,067 Sectors<br>32,067 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.46 DA-14-F16

| **Test Case DA-14-F16 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed May 23 11:29:18 2012 |
| Drives: | src(01-IDE) dst (57-IDE) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F16-md5 1077479423 8B24F3D793188AF2473F69B267AFDA42<br>01F16-sha1 1077479423 074BA831B10132F4BF9F86AFAB37CB7FEF482C7D |
| Log Highlights: | ====== Destination drive setup ======<br>80043264 sectors wiped with 57<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 2104452<br>Sectors match: 2104452<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range:<br>run start Wed May 23 11:34:13 2012<br>run finish Wed May 23 11:35:25 2012<br>elapsed time 0:1:12<br>Normal exit |

<table>
<tr><th colspan="2">Test Case DA-14-F16 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td></td><td>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-07-f16\da-07-f16.e01] --> Drive G:<br>Sector 0 --> Sector 0<br>2,104,452 Sectors<br>2,104,452 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.47 DA-14-F32

| **Test Case DA-14-F32 X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Tue May 22 14:49:07 2012 |
| Drives: | src(01-IDE) dst (57-IDE) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F32-md5 4301789183 BFF7DC64C54339DA2A9D7972C076B514<br>01F32-sha1 4301789183 B861D9E999F39750B484FFB693FF69DEC090C6B8<br>01F32-sha256 4301789183<br>CAE3A4CC33D59548063255D2AA4016940AC712DD96985AD9B94FF271CC3E943E |
| Log Highlights: | ====== Destination drive setup ======<br>80043264 sectors wiped with 57<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 8401932<br>Sectors match: 8401929<br>Sectors differ: 3<br>Bytes differ: 3<br>Diffs range: 1, 36, 8226<br>run start Wed May 23 11:42:53 2012<br>run finish Wed May 23 11:46:45 2012<br>elapsed time 0:3:52 |

| Test Case DA-14-F32 X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | Normal exit<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>D:\da-07-f32\da-07-f32.001 --> Drive I:<br>Beginning of file --> Sector 0<br>8,401,932 Sectors<br>8,401,932 sector(s) successfully copied. |
| Results: | |

| Assertion & Expected Result | Actual Result |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | as expected |
| AO-13 Clone created using interface AI. | as expected |
| AO-14 An unaligned clone is created. | 3 sectors differ |
| AO-17 Excess sectors are unchanged. | as expected |
| AO-23 Logged information is correct. | as expected |

| | |
|---|---|
| Analysis: | Expected results not achieved |

## 5.2.48 DA-14-F32-ALT

| Test Case DA-14-F32-ALT X-Ways Forensics 16.2 SR-5 | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | Frank |
| Test Date: | Fri Jul 12 2013 |
| Drives: | src(01-IDE-96) dst (23-IDE) other (0C-FU) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap |

**Test Case DA-14-F32-ALT X-Ways Forensics 16.2 SR-5**

```
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
01F32-md5 4301789183 BFF7DC64C54339DA2A9D7972C076B514
01F32-sha1 4301789183 B861D9E999F39750B484FFB693FF69DEC090C6B8
01F32-sha256 4301789183
CAE3A4CC33D59548063255D2AA4016940AC712DD96985AD9B94FF271CC3E943E
```

Log Highlights:

```
====== Destination drive setup ======
75813072 sectors wiped with 23

====== Comparison of original to clone drive ======
Sectors compared:      8401932
Sectors match:         8401932
Sectors differ:              0
Bytes differ:                0
Diffs range:
Source (8401932) has 2088450 fewer sectors than destination (10490382)
Zero fill:     0
Src Byte fill (01): 0
Dst Byte fill (23): 2088450
Other fill:    0
Other no fill: 0
Zero fill range:
Src fill range:
Dst fill range:  8401932-10490381
Other fill range:
Other not filled range:
run start Fri Jul 12 14:26:46 2013
run finish Fri Jul 12 14:30:48 2013
elapsed time 0:4:2
Normal exit


====== Tool Settings: ======
fill none
start-sector 0

OS: Microsoft Windows XP [Version 5.1.2600]

====== Extract from X-Ways logfile.txt file ======
[O:\xways16.2_re-run\da-07-f32\Hard disk 1, Partition 5.001] --> Hard disk
0, Partition 2
Sector 0 --> Sector 0
8,401,932 Sectors
8,401,932 sector(s) successfully copied.
```

Results:

| Assertion & Expected Result | Actual Result |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | 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-23 Logged information is correct. | as expected |

Analysis: Expected results achieved

## 5.2.49 DA-14-F32X

| **Test Case DA-14-F32X X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu Jun 28 10:22:38 2012 |
| Drives: | src(01-IDE) dst (57-IDE) other (58-IDE) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01F32X-md5 10742183423 B5BFD9CE3990C577EF89C5AFB925F947<br>01F32X-sha1 10742183423 30BA6CF583A176C5DB533E3A2F57BFD5A4A870C1 |
| Log Highlights: | ====== Destination drive setup ======<br>80043264 sectors wiped with 57<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 20980827<br>Sectors match: 20980824<br>Sectors differ: 3<br>Bytes differ: 3<br>Diffs range: 1, 32, 10268<br>run start Wed May 23 14:52:32 2012<br>run finish Wed May 23 15:01:35 2012<br>elapsed time 0:9:3<br>Normal exit |

| Test Case DA-14-F32X X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | ====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-07-32x\da-07-32x.e01] --> Drive E:<br>Sector 0 --> Sector 0<br>20,980,827 Sectors<br>20,980,827 sector(s) successfully copied. |
| Results: | |

| Assertion & Expected Result | Actual Result |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | as expected |
| AO-13 Clone created using interface AI. | as expected |
| AO-14 An unaligned clone is created. | 3 sectors differ |
| AO-17 Excess sectors are unchanged. | as expected |
| AO-23 Logged information is correct. | as expected |

| | |
|---|---|
| Analysis: | Expected results not achieved |

## 5.2.50 DA-14-FW

| **Test Case DA-14-FW X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Wed Apr 11 15:35:07 2012 |
| Drives: | src(63-FU2) dst (30-IDE) other (29-SATA) |
| Source Setup: | src hash (SHA256): <<br>EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D ><br>src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B ><br>src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC ><br>117304992 total sectors (60060155904 bytes)<br>Model (SP0612N ) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16<br>2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended<br>3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32<br>4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 004192902 sectors 2146765824 bytes<br>3 113097537 sectors 57905938944 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>156301488 sectors wiped with 30<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 117304992<br>Sectors match: 117304992<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (117304992) has 38996496 fewer sectors than destination (156301488)<br>Zero fill: 0<br>Src Byte fill (63): 0<br>Dst Byte fill (30): 38996496<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 117304992-156301487<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-06-fw\da-06-fw.e01] --> ST380215A<br>Sector 0 --> Sector 0 |

<table>
<tr><td colspan="2">Test Case DA-14-FW X-Ways Forensics 16.2 SR-5</td></tr>
<tr><td></td><td>117,304,992 Sectors<br>117,304,992 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.51 DA-14-HOT

<table>
<tr><th colspan="2">Test Case DA-14-HOT X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>frank</td></tr>
<tr><td>Test Date:</td><td>Tue Jun 18 09:10:09 2013</td></tr>
<tr><td>Drives:</td><td>src(01-SATA) dst (05-SATA) other (02-IDE)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA256): <<br>1AA01FEAE55F5CD55185D2B1A1359B3F913E7093FEF1D1ADA220CAC456BA40D8 ><br>src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C ><br>src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 ><br>156301488 total sectors (80026361856 bytes)<br>Model (0JD-32HKA0 ) serial # (WD-WMAJ91448529)</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>156301488 sectors wiped with 5<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 156301488<br>Sectors match: 156301488<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[G:\da-13.e01] --> WDC WD800JD-32HKA0<br>Sector 0 --> Sector 0<br>156,301,488 Sectors<br>156,301,488 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.52 DA-14-NT

| **Test Case DA-14-NT X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | Nihilus |
| Test Date: | Wed Dec 5 16:35:59 2012 |
| Drives: | src(01-IDE-58) dst (7A-SATA) other (0F-FU) |
| Source Setup: | src hash (SHA1): < A48BB5665D6DC57C22DB68E2F723DA9AA8DF82B9 ><br>src hash (MD5): < F458F673894753FA6A0EC8B8EC63848E ><br>78165360 total sectors (40020664320 bytes)<br>Model (0BB-00JHC0 ) serial # ( WD-WMAMC74171)<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 020980827 0000/001/01 1023/254/63 0C Fat32X<br>2 X 020980890 057175335 1023/000/01 1023/254/63 0F extended<br>3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027744255 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027744192 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027744192 sectors 14205026304 bytes<br>01NT-md5 14205026303 92B27B30BEE8B0FFBA8C660FA1590D49<br>Excess destination partition sectors hash:<br>SHA1 14205026304 - 17182577663 = 72CD11F3FC2E48D329965DABD0877E30AA7A7787 |
| Log Highlights: | ====== Destination drive setup ======<br>156250000 sectors wiped with 7A<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 27744192<br>Sectors match: 27700231<br>Sectors differ: 43961<br>Bytes differ: 22384084<br>Diffs range: 6160368-6160399, 6160424-6160631, 6291448-6291479, 6291504-6291967, 6701312-6744447, 9759488-9759489, 9760000-9760001, 13872088-13872096, 13872104-13872159, 13872168-13872175, 13872384, 13872396-13872397, 13872615, 27744184-27744191<br>Source (27744192) has 5815530 fewer sectors than destination (33559722)<br>Zero fill: 0 |

**Test Case DA-14-NT X-Ways Forensics 16.2 SR-5**

```
Src Byte fill (01): 0
Dst Byte fill (7A): 5815529
Other fill:    0
Other no fill: 1
Zero fill range:
Src fill range:
Dst fill range:  27744192-33559720
Other fill range:
Other not filled range:  33559721
run start Wed Dec  5 17:09:42 2012
run finish Wed Dec  5 17:23:58 2012
elapsed time 0:14:16
Normal exit


====== Tool Settings: ======
start-sector 0

OS: Microsoft Windows [Version 6.1.7600]

====== Extract from X-Ways logfile.txt file ======
[L:\XWays-reRun-II\da-07-nt-alt\da-07-nt-alt.001] --> Drive K:
Sector 0 --> Sector 0
27,744,184 Sectors
27,744,184 sector(s) successfully copied.

Excess destination partition sectors hash:
SHA1 14205026304 - 17182577663 = 72CD11F3FC2E48D329965DABD0877E30AA7A7787
```

Results:

| Assertion & Expected Result | Actual Result |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | as expected |
| AO-13 Clone created using interface AI. | as expected |
| AO-14 An unaligned clone is created. | 43961 sectors differ |
| AO-17 Excess sectors are unchanged. | as expected |
| AO-23 Logged information is correct. | as expected |

Analysis: Expected results not achieved

## 5.2.53 DA-14-NT-ALT

**Test Case DA-14-NT-ALT X-Ways Forensics 16.2 SR-5**

Case Summary: DA-14 Create an unaligned clone from an image file.

Assertions:
AM-03 The tool executes in execution environment XE.
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-17 If requested, any excess sectors on a clone destination device are not modified.
AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.

Tester Name: jrr

Test Host: Frank

Test Date: Wed Jul 31 11:32:25 2013

Drives: src(43) dst (08-IDE) other (0C-FU)

Source Setup:

```
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
```

| Test Case DA-14-NT-ALT X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | 3 S 000000063 000032067 1023/001/01 1023/254/63 01 Fat12<br>4 x 000032130 002104515 1023/000/01 1023/254/63 05 extended<br>5 S 000000063 002104452 1023/001/01 1023/254/63 06 Fat16<br>6 x 002136645 004192965 1023/000/01 1023/254/63 05 extended<br>7 S 000000063 004192902 1023/001/01 1023/254/63 16 other<br>8 x 006329610 008401995 1023/000/01 1023/254/63 05 extended<br>9 S 000000063 008401932 1023/001/01 1023/254/63 0B Fat32<br>10 x 014731605 010490445 1023/000/01 1023/254/63 05 extended<br>11 S 000000063 010490382 1023/001/01 1023/254/63 83 Linux<br>12 x 025222050 004209030 1023/000/01 1023/254/63 05 extended<br>13 S 000000063 004208967 1023/001/01 1023/254/63 82 Linux swap<br>14 x 029431080 027712125 1023/000/01 1023/254/63 05 extended<br>15 S 000000063 027712062 1023/001/01 1023/254/63 07 NTFS<br>16 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>17 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>18 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 020980827 sectors 10742183424 bytes<br>3 000032067 sectors 16418304 bytes<br>5 002104452 sectors 1077479424 bytes<br>7 004192902 sectors 2146765824 bytes<br>9 008401932 sectors 4301789184 bytes<br>11 010490382 sectors 5371075584 bytes<br>13 004208967 sectors 2154991104 bytes<br>15 027712062 sectors 14188575744 bytes<br>01NT-md5 14205026303 5D42FA317C802ACFEF2D313092D7411E<br>Excess destination partition sectors hash:<br>SHA1 14188575744 - 15035779583 = 027E7E6DEF7CB64E9861C847B960B0409C706CDD |
| Log Highlights: | ====== Destination drive setup ======<br>78165360 sectors wiped with 8<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 27712062<br>Sectors match: 27711923<br>Sectors differ: 139<br>Bytes differ: 15295<br>Diffs range: 16, 32-39, 48-55, 80-95, 208-223, 13856024-13856095, 13987104-13987119, 13988291, 13988803<br>Source (27712062) has 1654695 fewer sectors than destination (29366757)<br>Zero fill: 0<br>Src Byte fill (43): 0<br>Dst Byte fill (08): 1654695<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 27712062-29366756<br>Other fill range:<br>Other not filled range:<br>run start Wed Jul 31 10:23:46 2013<br>run finish Wed Jul 31 10:37:44 2013<br>elapsed time 0:13:58<br>Normal exit<br><br>====== Tool Settings: ======<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[I:\xways16.2_re-run\da-07-nt\Hard disk 6, Partition 8.001] --> Hard disk 0, Partition 2<br>Sector 0 --> Sector 0<br>27,712,062 Sectors<br>27,712,062 sector(s) successfully copied.<br><br>Excess destination partition sectors hash:<br>SHA1 14188575744 - 15035779583 = 027E7E6DEF7CB64E9861C847B960B0409C706CDD |
| Results: | **Assertion & Expected Result** \| **Actual Result** |

| Test Case DA-14-NT-ALT X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | AM-03 Execution environment is XE. | as expected |
| | AO-12 A clone is created from an image file. | as expected |
| | AO-13 Clone created using interface AI. | as expected |
| | AO-14 An unaligned clone is created. | 139 sectors differ |
| | AO-17 Excess sectors are unchanged. | as expected |
| | AO-23 Logged information is correct. | as expected |
| Analysis: | Expected results not achieved | |

## 5.2.54 DA-14-SATA28

<table>
<tr><th colspan="2">Test Case DA-14-SATA28 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Wed Apr 4 14:37:43 2012</td></tr>
<tr><td>Drives:</td><td>src(01-SATA) dst (4D-SATA) other (23-IDE)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA256): <<br>1AA01FEAE55F5CD55185D2B1A1359B3F913E7093FEF1D1ADA220CAC456BA40D8 ><br>src hash (SHA1): < 4951236428C36B944E62E8D65862DCBEF05F282C ><br>src hash (MD5): < 0A49B13D91FA9DA87CEEE9D006CB6FD6 ><br>156301488 total sectors (80026361856 bytes)<br>Model (0JD-32HKA0 ) serial # (WD-WMAJ91448529)</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>156301488 sectors wiped with 4D<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 156301488<br>Sectors match: 156301488<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-06-sata28\da-06-sata28.e01] --> WDC WD800JD-32HKA0<br>Sector 0 --> Sector 0<br>156,301,488 Sectors<br>156,301,488 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.55 DA-14-SATA48

<table>
<tr><th colspan="2">Test Case DA-14-SATA48 X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Thu Apr 5 16:51:54 2012</td></tr>
<tr><td>Drives:</td><td>src(0B-SATA) dst (2C-IDE) other (66-SATA)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA256): <<br>0026805624818CAEDAD12019DCDB16E79DE3C47CFE1C717193F9880B3DB32A9F ><br>src hash (SHA1): < DA892EE968DD828F2F1B6825C1D3EF35062A0737 ><br>src hash (MD5): < 1873847F597A69D0F5DB991B67E84F92 ><br>488397168 total sectors (250059350016 bytes)<br>30400/254/63 (max cyl/hd values)<br>30401/255/63 (number of cyl/hd)<br>Model (00JD-22FYB0 ) serial # (WD-WMAEH2677545)</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>490234752 sectors wiped with 2C<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 488397168<br>Sectors match: 488397168<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (488397168) has 1837584 fewer sectors than destination (490234752)<br>Zero fill: 0<br>Src Byte fill (0B): 0<br>Dst Byte fill (2C): 1837584<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 488397168-490234751<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>====== Extract from X-Ways logfile.txt file ======<br>D:\da-06-sata48\da-06-sata48.001 --> Maxtor 7Y250P0<br>Beginning of file --> Sector 0<br>488,397,168 Sectors<br>488,397,168 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
</table>
</td></tr>
</table>

| Test Case DA-14-SATA48 X-Ways Forensics 16.2 SR-5 | | |
|---|---|---|
| | AO-17 Excess sectors are unchanged. | as expected |
| | AO-23 Logged information is correct. | as expected |
| Analysis: | Expected results achieved | |

## 5.2.56 DA-14-SCSI

| **Test Case DA-14-SCSI X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu Apr 12 11:28:26 2012 |
| Drives: | src(E0) dst (08-IDE) other (05-SATA) |
| Source Setup: | src hash (SHA1): < 4A6941F1337A8A22B10FC844B4D7FA6158BECB82 ><br>src hash (MD5): < A97C8F36B7AC9D5233B90AC09284F938 ><br>17938985 total sectors (9184760320 bytes)<br>Model (ATLAS10K2-TY092J) serial # (169028142436) |
| Log Highlights: | ====== Destination drive setup ======<br>78165360 sectors wiped with 8<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 17938985<br>Sectors match: 17938985<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (17938985) has 60226375 fewer sectors than destination (78165360)<br>Zero fill: 0<br>Src Byte fill (E0): 0<br>Dst Byte fill (08): 60226375<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 17938985-78165359<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-06-scsi\da-06-scsi.e01] --> ST340016A<br>Sector 0 --> Sector 0<br>17,938,985 Sectors<br>17,938,985 sector(s) successfully copied. |
| Results: | |

| **Assertion & Expected Result** | **Actual Result** |
|---|---|
| AM-03 Execution environment is XE. | as expected |
| AO-12 A clone is created from an image file. | 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-23 Logged information is correct. | as expected |

| Test Case DA-14-SCSI X-Ways Forensics 16.2 SR-5 | |
|---|---|
| | |
| Analysis: | Expected results achieved |

## 5.2.57 DA-14-THUMB

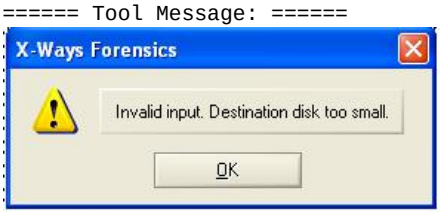
<table>
<tr><th colspan="2">Test Case DA-14-THUMB X-Ways Forensics 16.2 SR-5</th></tr>
<tr><td>Case Summary:</td><td>DA-14 Create an unaligned clone from an image file.</td></tr>
<tr><td>Assertions:</td><td>AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file.</td></tr>
<tr><td>Tester Name:</td><td>jrr</td></tr>
<tr><td>Test Host:</td><td>freddy</td></tr>
<tr><td>Test Date:</td><td>Mon Apr 23 10:44:37 2012</td></tr>
<tr><td>Drives:</td><td>src(D5-THUMB) dst (D4-THUMB) other (D6-THUMB)</td></tr>
<tr><td>Source Setup:</td><td>src hash (SHA1): < D68520EF74A336E49DCCF83815B7B08FDC53E38A ><br>src hash (MD5): < C843593624B2B3B878596D8760B19954 ><br>505856 total sectors (258998272 bytes)<br>Model (usb2.0Flash Disk) serial # ()</td></tr>
<tr><td>Log Highlights:</td><td>====== Destination drive setup ======<br>505856 sectors wiped with D4<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 505856<br>Sectors match: 505856<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>D:\da-07-thumb\da-07-thumb.001 --> CRUCIAL usb2.0Flash Disk<br>Beginning of file --> Sector 0<br>505,856 Sectors<br>505,856 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.58 DA-14-USB

| **Test Case DA-14-USB X-Ways Forensics 16.2 SR-5** | |
|---|---|
| Case Summary: | DA-14 Create an unaligned clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-17 If requested, any excess sectors on a clone destination device are not modified.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Mon Apr 9 13:52:55 2012 |
| Drives: | src(63-fu2) dst (2F-IDE) other (80-FU2) |
| Source Setup: | src hash (SHA256): <<br>EC8EF011494BA6DA18F74C47547C3E74E7180585096A830F9247A98EF613BB1D ><br>src hash (SHA1): < F7069EDCBEAC863C88DECED82159F22DA96BE99B ><br>src hash (MD5): < EE217BC4FA4F3D1B4021D29B065AA9EC ><br>117304992 total sectors (60060155904 bytes)<br>Model (SP0612N ) serial # ()<br>N Start LBA Length Start C/H/S End C/H/S boot Partition type<br>1 P 000000063 004192902 0000/001/01 0260/254/63 Boot 06 Fat16<br>2 X 004192965 113097600 0261/000/01 1023/254/63 0F extended<br>3 S 000000063 113097537 0261/001/01 1023/254/63 0B Fat32<br>4 S 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>5 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>6 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry<br>1 004192902 sectors 2146765824 bytes<br>3 113097537 sectors 57905938944 bytes |
| Log Highlights: | ====== Destination drive setup ======<br>156301488 sectors wiped with 2F<br><br>====== Comparison of original to clone drive ======<br>Sectors compared: 117304992<br>Sectors match: 117304992<br>Sectors differ: 0<br>Bytes differ: 0<br>Diffs range<br>Source (117304992) has 38996496 fewer sectors than destination (156301488)<br>Zero fill: 0<br>Src Byte fill (63): 0<br>Dst Byte fill (2F): 38996496<br>Other fill: 0<br>Other no fill: 0<br>Zero fill range:<br>Src fill range:<br>Dst fill range: 117304992-156301487<br>Other fill range:<br>Other not filled range:<br>0 source read errors, 0 destination read errors<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== Extract from X-Ways logfile.txt file ======<br>[D:\da-06-usb\da-06-usb.e01] --> ST380215A<br>Sector 0 --> Sector 0 |

<table>
<tr><td colspan="2">Test Case DA-14-USB X-Ways Forensics 16.2 SR-5</td></tr>
<tr><td></td><td>117,304,992 Sectors<br>117,304,992 sector(s) successfully copied.</td></tr>
<tr><td>Results:</td><td>
<table>
<tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr>
<tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr>
<tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr>
<tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr>
<tr><td>AO-14 An unaligned clone is created.</td><td>as expected</td></tr>
<tr><td>AO-17 Excess sectors are unchanged.</td><td>as expected</td></tr>
<tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr>
</table>
</td></tr>
<tr><td>Analysis:</td><td>Expected results achieved</td></tr>
</table>

## 5.2.59 DA-17

| Test Case DA-17 X-Ways Forensics 16.2 SR-5 | |
|---|---|
| Case Summary: | DA-17 Create a truncated clone from an image file. |
| Assertions: | AM-03 The tool executes in execution environment XE.<br>AO-12 If requested, a clone is created from an image file.<br>AO-13 A clone is created using access interface DST-AI to write to the clone device.<br>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.<br>AO-20 If a truncated clone is created, the tool notifies the user.<br>AO-23 If the tool logs any log significant information, the information is accurately recorded in the log file. |
| Tester Name: | jrr |
| Test Host: | freddy |
| Test Date: | Thu May 10 12:16:03 2012 |
| Drives: | src(E0) dst (57-IDE) other (D6-THUMB) |
| Source Setup: | src hash (SHA1): < 4A6941F1337A8A22B10FC844B4D7FA6158BECB82 ><br>src hash (MD5): < A97C8F36B7AC9D5233B90AC09284F938 ><br>17938985 total sectors (9184760320 bytes)<br>Model (ATLAS10K2-TY092J) serial # (169028142436) |
| Log Highlights: | ====== Destination drive setup ======<br>4001760 sectors wiped with D6<br><br>====== Tool Settings: ======<br>fill none<br>start-sector 0<br><br>OS: Microsoft Windows XP [Version 5.1.2600]<br><br>====== No X-Ways logfile.txt file created ======<br><br>====== Tool Message: ======<br>  |
| Results: | <table><tr><th>Assertion & Expected Result</th><th>Actual Result</th></tr><tr><td>AM-03 Execution environment is XE.</td><td>as expected</td></tr><tr><td>AO-12 A clone is created from an image file.</td><td>as expected</td></tr><tr><td>AO-13 Clone created using interface AI.</td><td>as expected</td></tr><tr><td>AO-19 Truncated clone is created.</td><td>as expected</td></tr><tr><td>AO-20 User notified that clone is truncated.</td><td>as expected</td></tr><tr><td>AO-23 Logged information is correct.</td><td>as expected</td></tr></table> |
| Analysis: | Expected results achieved |