Test Results for Hardware Write Block Device: Digital Intelligence Firefly 800 IDE (FireWire Interface)
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Test Results for Hardware Write Block
Device: Digital Intelligence Firefly 800 IDE
(FireWire Interface)
Glenn R. Schmitt

Acting Director

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April 2006
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Introduction

The Computer Forensics Tool Testing (CFTT) program is a joint project of the National Institute of Justice (NIJ), the research and development organization of the U.S. Department of Justice, and the National Institute of Standards and Technology’s (NIST’s) Office of Law Enforcement Standards (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, Internal Revenue Service Criminal Investigation’s Electronic Crimes Program, and the U.S. Department of Homeland Security’s Bureau of U.S. Immigration and Customs Enforcement and U.S. Secret Service. The objective of the CFTT program is to provide measurable assurance to practitioners, researchers, and other applicable users that the tools used in computer forensics investigations provide accurate results. Accomplishing this requires the development of specifications and test methods for computer forensics tools and subsequent testing of specific tools against those specifications.

Test results provide the information necessary for developers to improve tools, users to make informed choices, and the legal community and others to understand the tools’ capabilities. This 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 the Digital IntelligenceFireFly 800 IDE (FireWire Interface) write blocker against Hardware Write Blocker (HWB) Assertions and Test Plan Version 1.0, available on the CFTT Web site (http://www.cftt.nist.gov/HWB-ATP-19.pdf). This specification identifies the following top-level tool requirements:

- A hardware write block (HWB) device shall not transmit a command to a protected storage device that modifies the data on the storage device.
- An HWB device shall return the data requested by a read operation.
- An HWB device shall return without modification any access-significant information requested from the drive.
- Any error condition reported by the storage device to the HWB device shall be reported to the host.

Test results from other software packages and the CFTT tool methodology can be found on NIJ’s computer forensics tool testing Web page, http://www.ojp.usdoj.gov/nij/topics/ecrime/cftt.htm.
Test Results for Hardware Write Block Devices

Device Tested: Digital Intelligence FireFly 800 IDE by Tableau
Model: T14
Serial No: 000ECC01000E232D
Firmware: January 31, 2005 16:30:32

Host to Blocker Interface: FireWire
Blocker to Drive Interface: IDE

Supplier: Digital Intelligence
Address: 1325 Pearl Street
Waukesha, WI 53186
Tel: 866–DIGINTEL (866–344–4683)
www.DigitalIntelligence.com

1 Results Summary by Requirements

An HWB device shall not transmit a command to a protected storage device that modifies the data on the storage device.
For all test cases run, the HWB device always blocked any commands that would have changed user or operating system data stored on a protected drive.

An HWB device shall return the data requested by a read operation.
For all test cases run, the HWB device always allowed commands to read the protected drive.

An HWB device shall return without modification any access-significant information requested from the drive.
For all test cases run, the HWB device always returned access-significant information from the protected drive without modification.

Any error condition reported by the storage device to the HWB device shall be reported to the host.
For all test cases run, the HWB device always returned error codes from the protected drive without modification.

2 Test Case Selection

Because a protocol analyzer was not available for the interface between the blocker and the protected drive, the following test cases were appropriate: HWB-02, HWB-04, HWB-05, HWB-07, HWB-08, and HWB-09.
For test case HWB-04, two variations were selected: file (attempt to use operating system commands to create and delete file system objects, such as files and directories, from a protected drive) and image (use an imaging tool to attempt to write to a protected drive).

For test case HWB-07, one variation was selected: ix (use a stand-alone imaging tool [IXimager] to read from a protected drive).

3 Observations

For test case HWB-04-file, the protected drive was set up with two partitions, FAT32 and NTFS. The NTFS partition was visible but not accessible to Windows 2000 (see Figure 1). It was therefore not possible to attempt to create or delete files and directories from the NTFS partition. However, the NTFS partition was accessible from Windows XP.

![Figure 1. Screen Display From Test Case HWB-04-file.](image)

4 Testing Environment

The tests were run in the NIST CFTT lab. This section describes the hardware (test computers and hard drives) available for testing.

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4.1 Test Computers
Two test computers were used: Nancy and MrsPeel. Nancy and MrsPeel have the following configuration:

FIC IC–VL67 (865G; S478; 800MHz)
Phoenix—Award BIOS version v6.00PG
Intel Pentium® 4 CPU
Plextor DVDR PX–716A, ATAPI CD/DVD–ROM drive
1.44MB floppy drive
Three IEEE 1394 ports
Four USB ports

4.2 Protocol Analyzer
A Data Transit bus protocol analyzer (Bus Doctor Rx) was used to monitor and record commands sent from the host to the write blocker. Two identical protocol analyzers were available for monitoring commands.

One of two Dell laptop computers (either Chip or Dale) was connected to each protocol analyzer to record commands observed by the protocol analyzer.

4.3 Hard Disk Drives
The hard disk drive used in testing is described below.

<table>
<thead>
<tr>
<th>Drive label: 8B</th>
<th>Partition table Drive /dev/sda</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00011/254/63 (max cyl/hd values)</td>
</tr>
<tr>
<td></td>
<td>00012/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td></td>
<td>201600 total number of sectors</td>
</tr>
<tr>
<td>Model (0EB-00CSF0 ) serial # (WD-WTAV4044563)</td>
<td></td>
</tr>
<tr>
<td>N Start LBA Length Start C/H/S End C/H/S boot Partition type</td>
<td></td>
</tr>
<tr>
<td>1 P 000000063 000096327 0000/001/01 0005/254/63</td>
<td>0B Fat32</td>
</tr>
<tr>
<td>2 X 000096390 000096390 0006/000/01 0011/254/63</td>
<td>05 extended</td>
</tr>
<tr>
<td>3 S 000000063 000096327 0006/001/01 0011/254/63</td>
<td>07 NTFS</td>
</tr>
<tr>
<td>4 S 000000000 000000000 0000/000/00 0000/000/00</td>
<td>00 empty entry</td>
</tr>
<tr>
<td>5 P 000000000 000000000 0000/000/00 0000/000/00</td>
<td>00 empty entry</td>
</tr>
<tr>
<td>6 P 000000000 000000000 0000/000/00 0000/000/00</td>
<td>00 empty entry</td>
</tr>
</tbody>
</table>

P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition

4.4 Support Software
The software in the following table was used to send commands to the protected drive. One widely used imaging tool, IXimager, was used to generate disk activity (reads and writes) consistent with a realistic scenario of an accidental modification of an unprotected hard drive during a forensic examination. This does not imply an endorsement of the imaging tool.
Program | Description
-------|----------------------------------
sendSCSI | A tool to send SCSI commands wrapped in the USB or IEEE 1394 (firewire) protocols to a drive.
FS–TST | Software from the FS–TST tools was used to generate errors from the hard drive by trying to read beyond the end of the drive. The FS–TST software was also used to setup the hard drives and print partition tables and drive size.
IXimager | An imaging tool (ILook IXimager Version 1.0, August 25, 2004) for test case 03-img.

5 Test Results

The main item of interest for interpreting the test results is determining the conformance of the device to the test assertions. This section lists each test assertion and identifies the information in the log files relevant to conformance to that assertion. Conformance of each assertion tested by a given test case is evaluated by examining the Blocker Input and Blocker Output boxes of the test report summary.

5.1 Test Results Report Key

A summary of the actual test results is presented in this report. The following table presents a description of each section of the test report summary.

<table>
<thead>
<tr>
<th>Heading</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Line</td>
<td>Test case ID, name and version of device tested.</td>
</tr>
<tr>
<td>Case Summary</td>
<td>Test case summary from <em>Hardware Write Blocker (HWB) Assertions and Test Plan Version 1.0.</em></td>
</tr>
<tr>
<td>Assertions Tested</td>
<td>The test assertions tested by the test case from <em>Hardware Write Blocker (HWB) Assertions and Test Plan Version 1.0.</em></td>
</tr>
<tr>
<td>Tester Name</td>
<td>Name or initials of person executing test procedure.</td>
</tr>
<tr>
<td>Test Date</td>
<td>Time and date that test was started.</td>
</tr>
<tr>
<td>Test Configuration</td>
<td>Identification of the following:</td>
</tr>
<tr>
<td></td>
<td>1. Label of the protected hard drive.</td>
</tr>
<tr>
<td></td>
<td>2. Interface between host and blocker.</td>
</tr>
<tr>
<td></td>
<td>3. Interface between blocker and protected drive.</td>
</tr>
<tr>
<td></td>
<td>5. Laptop attached to each protocol analyzer.</td>
</tr>
<tr>
<td></td>
<td>6. Execution environment for tool sending commands from the host.</td>
</tr>
<tr>
<td>Hard Drives Used</td>
<td>Description of the protected hard drive.</td>
</tr>
<tr>
<td>Blocker Input</td>
<td>A list of commands sent from the host to the blocker.</td>
</tr>
<tr>
<td></td>
<td>For test cases HWB-02 and HWB-07, a list of the commands sent is provided.</td>
</tr>
</tbody>
</table>
For test cases HWB-02 and HWB-04, a SHA1 value for the entire drive is provided for reference.

For test case HWB-05, a string of known data from a given location is provided for reference.

**Blocker Output**

For test cases HWB-02 and HWB-04, a SHA1 value computed after commands are sent to the protected drive is given for comparison to the reference SHA1 value.

For test case HWB-05, a string read from a given location is provided for comparison to known data.

For test case HWB-08, the number of sectors determined for the protected drive and the partition table are provided.

For test case HWB-09, any error return obtained by trying to access a nonexistent sector of the drive is provided.

**Results:**

Expected and actual results for each assertion tested.

**Analysis:**

Whether or not the expected results were achieved.

### 5.2 Test Details

**Test Case HWB-02 Variation hwb-02 Digital Intelligence FireFly IDE**

<table>
<thead>
<tr>
<th>Case Summary:</th>
<th>HWB-02 Identify modifying commands blocked by the HWB.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assertions Tested:</td>
<td>HWB-AM-01 The HWB shall not transmit any modifying category operation to the protected storage device.</td>
</tr>
<tr>
<td>Tester Name:</td>
<td>JRL</td>
</tr>
</tbody>
</table>
| Test Date: | run start Sun Sep 11 15:58:06 2005  
run finish Sun Sep 11 16:02:57 2005 |
| Test Configuration: | HOST: MrsPeel  
HostToBlocker Monitor: Dale  
HostToBlocker PA: AA00111  
HostToBlocker Interface: FW  
BlockerToDrive Monitor: none  
BlockerToDrive PA: none  
BlockerToDrive Interface: IDE  
Run Environment: Knoppix |
| Drives: | Protected drive: 8B  
8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB) |
| Blocker Input: | SHA of 8B is 92577F7B0A265FC883BBDFBF8E4B58959B4D1 -  
Commands Sent to Blocker  
210 SBP2 OP=READ(10)  
2 SBP2 OP=WRITE(10)  
1 SBP2 OP=WRITE BUFFER |

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**Test Case HWB-02 Variation hwb-02 Digital Intelligence FireFly IDE**

<table>
<thead>
<tr>
<th>Step</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SBP2 OP=WRITE LONG</td>
</tr>
<tr>
<td>1</td>
<td>SBP2 OP=WRITE SAME</td>
</tr>
<tr>
<td>2</td>
<td>SBP2 OP=WRITE/VERIFY</td>
</tr>
<tr>
<td>1</td>
<td>SBP2 OP=XDWRITE(10)</td>
</tr>
<tr>
<td>1</td>
<td>SBP2 OP=XDWRITEREAD(10)</td>
</tr>
<tr>
<td>1</td>
<td>SBP2 OP=XPWRITE(10)</td>
</tr>
</tbody>
</table>

**Blocker Output:**
```
CMD: ../../../diskhash.csh HWB-02 MrsPeel JRL /dev/sda 8B -
after -new_log
92577F7B0A265FC883BBDFBF88E4E58E959B4D1 -
```

**Results:**

<table>
<thead>
<tr>
<th>Assertion &amp; Expected Result</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-01 Modifying commands</td>
<td>blocked</td>
</tr>
</tbody>
</table>

**Analysis:**

Expected results achieved

---

**Test Case HWB-04 Variation HWB-04-file Digital Intelligence FireFly IDE**

**Case Summary:**

HWB-04 Attempt to modify a protected drive with forensic tools.

**Assertions Tested:**

HWB-AM-01 The HWB shall not transmit any modifying category operation to the protected storage device.

**Tester Name:**

JRL

**Test Date:**

run start Sun Sep 11 14:56:19 2005  
run finish Sun Sep 11 15:13:19 2005

**Test Configuration:**

HOST: Nancy  
HostToBlocker Monitor: none  
HostToBlocker PA: none  
HostToBlocker Interface: FW  
BlockerToDrive Monitor: none  
BlockerToDrive PA: none  
BlockerToDrive Interface: IDE  
Run Environment: W2K

**Drives:**

Protected drive: 8B  
8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB)

**Blocker Input:**

SHA of 8B is 92577F7B0A265FC883BBDFBF88E4E58E959B4D1 -  
Commands are sent to blocker by OS operations:  
@echo off  
REM %1 is the directory where alpha, beta & gamma are created  
REM Redirect the output to a logfile  
REM hwb-mod . X: > dir-setup.txt

```
echo "mod: %1"
mkdir %1\delta
rmdir %1\gamma
copy %1\beta\zeta.txt %1\alpha
copy %1\beta\omega.txt %1\delta
del %1\beta\zeta.txt
dir %1 /b /s
```
Test Case HWB-04 Variation HWB-04-file Digital Intelligence FireFly IDE

Blocker Output: Results for FAT partition:
"mod: E:" 0 file(s) copied.
0 file(s) copied.
E:\beta\zeta.txt
E:\alpha
E:\beta
E:\gamma
E:\beta\zeta.txt
E:\beta\omega.txt
Results for NTFS partition:
"mod: F:" The media is write protected.
The media is write protected.
Final SHA1 value:
CMD: ../../../diskhash.csh HWB-04-file MrsPeel JRL /dev/sda 8B -after -new_log
92577F7B0A265FC883BBDFBFBB8E4E58E959B4D1

Results: | Assertion & Expected Result | Actual Result |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-01 Modifying commands blocked</td>
<td>Modifying commands blocked</td>
</tr>
</tbody>
</table>

Analysis: Expected results achieved

Test Case HWB-04 Variation HWB-04-img Digital Intelligence FireFly IDE

Case Summary: HWB-04 Attempt to modify a protected drive with forensic tools.

Assertions Tested: HWB-AM-01 The HWB shall not transmit any modifying category operation to the protected storage device.

Tester Name: JRL

Test Date: run start Sun Sep 11 16:09:16 2005
run finish Sun Sep 11 16:24:32 2005

Test Configuration: HOST: MrsPeel
HostToBlocker Monitor: none
HostToBlocker PA: none
HostToBlocker Interface: FW
BlockerToDrive Monitor: none
BlockerToDrive PA: none
BlockerToDrive Interface: IDE
Run Environment: IXimager

Drives: Protected drive: 8B
8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB)

Blocker Input: SHA of 8B is 92577F7B0A265FC883BBDFBFBB8E4E58E959B4D1 -
Commands are sent to blocker by imaging tool

Blocker Output: CMD: ../../../diskhash.csh HWB-04-img MrsPeel JRL /dev/sda 8B -after
92577F7B0A265FC883BBDFBFBB8E4E58E959B4D1

Results: | Assertion & Expected Result | Actual Result |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-01 Modifying commands blocked</td>
<td>Modifying commands blocked</td>
</tr>
</tbody>
</table>

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### Test Case HWB-04 Variation HWB-04-img Digital Intelligence FireFly IDE

**Analysis:**

Expected results achieved

### Test Case HWB-05 Variation hwb-05 Digital Intelligence FireFly IDE

**Case Summary:** HWB-05 Identify read commands allowed by the HWB.

**Assertions Tested:**

- **HWB-AM-02** If the host sends a read category operation to the HWB and no error is returned from the protected storage device to the HWB, then the data addressed by the original read operation is returned to the host.

**Tester Name:** JRL  
**Test Date:**

run start Sun Sep 11 15:47:26 2005  
run finish Sun Sep 11 15:57:24 2005

**Test Configuration:**

- **HOST:** MrsPeel  
- **HostToBlocker Monitor:** Dale  
- **HostToBlocker PA:** AA00111  
- **HostToBlocker Interface:** FW  
- **BlockerToDrive Monitor:** none  
- **BlockerToDrive PA:** none  
- **BlockerToDrive Interface:** IDE  
- **Run Environment:** Knoppix

**Drives:**

- **Protected drive:** 8B  
  8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB)

**Blocker Input:**

- Commands Sent to Blocker  
- Read sector 32767 for the string: 00002/010/08 0000000327670

**Blocker Output:**

- 00002/010/08 0000000327670

**Results:**

<table>
<thead>
<tr>
<th>Assertion &amp; Expected Result</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-02 Read commands allowed</td>
<td>Read commands allowed</td>
</tr>
</tbody>
</table>

**Analysis:**

Expected results achieved

### Test Case HWB-07 Variation HWB-07-ix Digital Intelligence FireFly IDE

**Case Summary:** HWB-07 Read a protected drive with forensic tools.

**Assertions Tested:**

- **HWB-AM-02** If the host sends a read category operation to the HWB and no error is returned from the protected storage device to the HWB, then the data addressed by the original read operation is returned to the host.  
- **HWB-AM-03** If the host sends an information category operation to the HWB and if there is no error on the protected storage device, then any returned access-significant information is returned to the host without modification.

**Tester Name:** JRL  
**Test Date:**

run start Sun Sep 11 16:25:48 2005  
run finish Sun Sep 11 16:35:51 2005

**Test Configuration:**

- **HOST:** MrsPeel  
- **HostToBlocker Monitor:** none  
- **HostToBlocker PA:** none  
- **HostToBlocker Interface:** FW  
- **BlockerToDrive Monitor:** none  
- **BlockerToDrive PA:** none

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### Test Case HWB-07 Variation HWB-07-ix Digital Intelligence FireFly IDE

| Drives: | Protected drive: 8B  
8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB) |
|---|---|
| Blocker Input: | Commands Sent to Blocker  
Commands are sent to blocker by imaging tool |
Sep 11 16:29:25 iimager: User entered the Image Target Menu  
Sep 11 16:29:37 iimager: User selected iLook Default Image Format  
Sep 11 16:30:08 iimager: Image is being stored to /dev/sdb1  
Sep 11 16:30:08 iimager: Beginning Image operation  
Sep 11 16:30:08 iimager: Opened output file '/iLookImage/iLook.004/image001.asm'  
Sep 11 16:30:08 iimager: Image is being stored to /iLook.004/image001.asm  
Sep 11 16:30:08 iimager: Image is being stored to /iLook.004/image001.asm  
Sep 11 16:30:08 iimager: Beginning Image operation for 103219200 bytes  
Sep 11 16:30:16 iimager: Image Complete  
Sep 11 16:30:16 iimager: Image was completed successfully.  
Sep 11 16:30:16 iimager: Image Speed : 12.90 MB/sec  
Sep 11 16:30:27 iimager: User exited the Image Target Menu  
Sep 11 16:30:27 iimager: User exited the Image Device Menu |
<table>
<thead>
<tr>
<th>Results:</th>
<th>Assertion &amp; Expected Result</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-02</td>
<td>Read commands allowed</td>
<td>Read commands allowed</td>
</tr>
<tr>
<td>AM-03</td>
<td>Access Significant Information unaltered</td>
<td>Access Significant Information unaltered</td>
</tr>
<tr>
<td>Analysis:</td>
<td></td>
<td>Expected results achieved</td>
</tr>
</tbody>
</table>

---

### Test Case HWB-08 Variation hwb-08 Digital Intelligence FireFly IDE

<table>
<thead>
<tr>
<th>Case Summary:</th>
<th>HWB-08 Identify access significant information unmodified by the HWB.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assertions Tested:</td>
<td>HWB-AM-03 If the host sends an information category operation to the HWB and if there is no error on the protected storage device, then any returned access-significant information is returned to the host without modification.</td>
</tr>
<tr>
<td>Tester Name:</td>
<td>JRL</td>
</tr>
</tbody>
</table>
| Test Date: | run start Sun Sep 11 15:34:30 2005  
run finish Sun Sep 11 15:36:20 2005 |
| Test Configuration: | HOST: MrsPeel  
HostToBlocker Monitor: none  
HostToBlocker PA: none  
HostToBlocker Interface: FW  
BlockerToDrive Monitor: none  
BlockerToDrive PA: none  
BlockerToDrive Interface: IDE  
Run Environment: Knoppix |

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### Test Case HWB-08 Variation hwb-08 Digital Intelligence FireFly IDE

**Drives:**
Protected drive: 8B
8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB)

**Blocker Output:**
cmd: ../../../partab HWB-08 MrsPeel JRL /dev/sda 8B -all
201600 total number of sectors

**Results:**
<table>
<thead>
<tr>
<th>Assertion &amp; Expected Result</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-03 Access Significant Information unaltered</td>
<td>Access Significant Information unaltered</td>
</tr>
</tbody>
</table>

**Analysis:**
Expected results achieved

### Test Case HWB-09 Variation hwb-09 Digital Intelligence FireFly IDE

**Case Summary:**
HWB-09 Determine if an error on the protected drive is returned to the host.

**Assertions Tested:**
HWB-AM-04 If the host sends an operation to the HWB and if the operation results in an unresolved error on the protected storage device, then the HWB shall return an error status code to the host.

**Tester Name:**
JRL

**Test Date:**
run start Sun Sep 11 15:36:51 2005
run finish Sun Sep 11 15:38:42 2005

**Test Configuration:**
HOST: MrsPeel
HostToBlocker Monitor: none
HostToBlocker PA: none
HostToBlocker Interface: FW
BlockerToDrive Monitor: none
BlockerToDrive PA: none
BlockerToDrive Interface: IDE
Run Environment: Knoppix

**Drives:**
Protected drive: 8B
8B is a WDC WD200EB-00CSF0 configured to report 201600 sectors (103 MB)

**Blocker Output:**
00011/254/63 (max cyl/hd values)
00012/255/63 (number of cyl/hd)
201600 total number of sectors
cmd: ../../../diskchg HWB-09 MrsPeel JRL /dev/sda -read 301600 0 32
Disk addr lba 301600 C/H/S 18/197/20 offset 0
Disk read error 0xFFFFFFFF at sector 18/197/20

**Results:**
<table>
<thead>
<tr>
<th>Assertion &amp; Expected Result</th>
<th>Actual Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM-04 Error code returned</td>
<td>Error code returned</td>
</tr>
</tbody>
</table>

**Analysis:**
Expected results achieved
About the National Institute of Justice

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

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

Strategic Goals

NIJ has seven strategic goals grouped into three categories:

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

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

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

Program Areas

In addressing these strategic challenges, the Institute is involved in the following program areas: crime control and prevention, including policing; drugs and crime; justice systems and offender behavior, including corrections; violence and victimization; communications and information technologies; critical incident response; investigative and forensic sciences, including DNA; less-than-lethal technologies; officer protection; education and training technologies; testing and standards; technology assistance to law enforcement and corrections agencies; field testing of promising programs; and international crime control.

In addition to sponsoring research and development and technology assistance, NIJ evaluates programs, policies, and technologies. NIJ communicates its research and evaluation findings through conferences and print and electronic media.