Tableau Forensic FireWire Bridge T9

Test Results for Hardware Write Block Device - Federated Testing Suite

October 17, 2018
Test Results for Hardware Write Block Device:
Tableau Forensic FireWire Bridge T9
Firmware Version Nov 10 2010 14:00:52

Federated Testing Suite for Hardware Write Blocking
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Introduction

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

Test results provide the information necessary for developers to improve tools, users to make informed choices, and the legal community and others to understand the tools’ capabilities. The CFTT approach to testing computer forensics tools is based on well-recognized methodologies for conformance and quality testing. Interested parties in the computer forensics community can review and comment on the specifications and test methods posted on the CFTT web page.

This document reports the results from testing the hardware write blocking function of the Tableau Forensic FireWire Bridge T9 device firmware version Nov 10 2010 14:00:52 using the CFTT Federated Testing Test Suite for Hardware Write Blocking, Version 3.1-1.

Federated Testing is an expansion of the CFTT program to provide forensic investigators and labs with test materials for tool testing and to support shared test reports. The goal of Federated Testing is to help forensic investigators to test the tools that they use in their labs and to enable sharing of tool test results. CFTT’s Federated Testing Forensic Tool Testing Environment and included test suites can be downloaded from the CFTT web page and used to test forensic tools. The results can be optionally shared with CFTT, reviewed by CFTT staff, and then shared with the community.

Test results from this and other tools can be found on DHS’s computer forensics web page.
How to Read This Report

This report is organized into the following sections:

1. Tested Device Description. The tool name, version and vendor information are listed.
2. Results Summary. This section identifies any significant anomalies observed in the test runs. This section provides a narrative of key findings identifying where the tool meets expectations and provides a summary of any ways the tool did not meet expectations. The section also provides any observations of interest about the tool or about testing the tool including any observed limitations on tool use.
3. Test Environment. Description of hardware and software used in tool testing.
4. Test Result Details by Case. Automatically generated test results that identify anomalies.
5. Appendix: Additional details. Additional details for each test case.
Test Results for Hardware Write Block Device: Tableau Forensic FireWire Bridge T9

1. Device Description

Device Name: Tableau Forensic FireWire Bridge T9
Firmware Version: Nov 10 2010 14:00:52

Manufacturer Contact:

   Manufacturer: OpenText Corporation
   Address: 1055 E. Colorado Blvd.
            Pasadena, CA 91106-2375
   Tel: (866) 229-9199
   WWW: https://www.guidancesoftware.com/

2. Results Summary

The tested device functioned as expected with no anomalies.

3. Test Environment

Hardware:
Custom PC with 12 USB 2, 3 eSATA, 2 FireWire 800 and 3 FireWire 400 ports.

Forensic FireWire Bridge T9 Firmware Version: Nov 10 2010 14:00:52
Serial Number: 000ecc01 00092157

4. Test Result Details by Case

This section presents test results grouped by case.

4.1. FT-HWB-FireWire
4.1.1. Test Case Description

Test a write blocker’s ability to write-protect a FireWire drive. This test can be repeated to test multiple types of connections (interfaces) between a computer and the write blocker. Test the ability of the write blocker to block write commands from the ATA and SCSI command sets issued from a test computer from modifying a FireWire drive.
4.1.2. Test Drive Description

Manufacturer, model & size of the test drive used for this test: Western Digital, WD3200E032, 320GB

4.1.3. Test Evaluation Criteria

For each computer to blocker connection tested, the number of `writes not blocked` should be 0.

4.1.4. Test Case Results

The following table presents results for the test case.

<table>
<thead>
<tr>
<th>Computer to Blocker Connection</th>
<th>Write Commands Sent</th>
<th>Writes Not Blocked</th>
</tr>
</thead>
<tbody>
<tr>
<td>FireWire 800</td>
<td>36</td>
<td>0</td>
</tr>
<tr>
<td>USB 2</td>
<td>36</td>
<td>0</td>
</tr>
</tbody>
</table>

4.1.5. Case Summary

Test drive unchanged.
5. Appendix: Additional Details

5.1. FT-HWB-FireWire

5.1.1. FireWire 800

```
# test-hwb.c Linux Version 1.4 created 06/27/18 at 10:56:14
compiled Jun 27 2018 10:56:31 with gcc Version 5.4.0 20160609
@(#) wrapper.c Linux Version 1.5 support lib created 08/03/17 at 13:05:44
@(#) ataraw.c Linux Version 1.3 support lib created 08/03/17 at 13:05:44
@(#) ataraw.h Linux Version 1.3 created 08/03/17 at 13:06:12

cmd: /usr/lib/cgi-bin/test-hwb -bh -p /media/cftt/FT-LOGS/FT-HWB-firewire/ GP
WoFat FT-HWB-firewire firewire800 firewire /dev/sda
operator: GP
host: WoFat
test case: FT-HWB-firewire
connection type: firewire800
drive/media type: firewire
device: /dev/sda

<table>
<thead>
<tr>
<th>Opcode</th>
<th>Command Name</th>
<th>Status</th>
<th>Lba/Sector</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>30h</td>
<td>(ATA) WRITE SECTOR(S)</td>
<td>Sent</td>
<td>12288</td>
<td>Unchanged</td>
</tr>
<tr>
<td>CAh</td>
<td>(ATA) WRITE DMA</td>
<td>Sent</td>
<td>51712</td>
<td>Unchanged</td>
</tr>
<tr>
<td>CCh</td>
<td>(ATA) WRITE DMA QUEUED</td>
<td>Sent</td>
<td>52224</td>
<td>Unchanged</td>
</tr>
<tr>
<td>C5h</td>
<td>(ATA) WRITE MULTIPLE</td>
<td>Sent</td>
<td>50432</td>
<td>Unchanged</td>
</tr>
<tr>
<td>31h</td>
<td>(ATA) WRITE SECTOR(S) w/o retries</td>
<td>Sent</td>
<td>12544</td>
<td>Unchanged</td>
</tr>
<tr>
<td>CBh</td>
<td>(ATA) WRITE DMA w/o retries</td>
<td>Sent</td>
<td>51968</td>
<td>Unchanged</td>
</tr>
<tr>
<td>34h</td>
<td>(ATA) WRITE SECTOR(S) EXT</td>
<td>Sent</td>
<td>13312</td>
<td>Unchanged</td>
</tr>
<tr>
<td>39h</td>
<td>(ATA) WRITE MULTIPLE EXT</td>
<td>Sent</td>
<td>14592</td>
<td>Unchanged</td>
</tr>
<tr>
<td>CEh</td>
<td>(ATA) WRITE MULTIPLE FUA EXT</td>
<td>Sent</td>
<td>52736</td>
<td>Unchanged</td>
</tr>
<tr>
<td>3Bh</td>
<td>(ATA) WRITE STREAM EXT</td>
<td>Sent</td>
<td>15104</td>
<td>Unchanged</td>
</tr>
<tr>
<td>35h</td>
<td>(ATA) WRITE DMA EXT</td>
<td>Sent</td>
<td>13568</td>
<td>Unchanged</td>
</tr>
<tr>
<td>3Dh</td>
<td>(ATA) WRITE DMA FUA EXT</td>
<td>Sent</td>
<td>15616</td>
<td>Unchanged</td>
</tr>
<tr>
<td>36h</td>
<td>(ATA) WRITE DMA QUEUED EXT</td>
<td>Sent</td>
<td>13824</td>
<td>Unchanged</td>
</tr>
<tr>
<td>3Eh</td>
<td>(ATA) WRITE DMA QUEUED FUA EXT</td>
<td>Sent</td>
<td>15872</td>
<td>Unchanged</td>
</tr>
<tr>
<td>3Ah</td>
<td>(ATA) WRITE STREAM DMA EXT</td>
<td>Sent</td>
<td>14848</td>
<td>Unchanged</td>
</tr>
<tr>
<td>38h</td>
<td>(ATA) CFA WRITE SECTORS W/O ERASE</td>
<td>Sent</td>
<td>14336</td>
<td>Unchanged</td>
</tr>
<tr>
<td>CDh</td>
<td>(ATA) CFA WRITE MULTIPLE W/O ERASE</td>
<td>Sent</td>
<td>52480</td>
<td>Unchanged</td>
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<tr>
<td>C0h</td>
<td>(ATA) CFA ERASE SECTORS</td>
<td>Sent</td>
<td>49152</td>
<td>Unchanged</td>
</tr>
<tr>
<td>0Ah</td>
<td>(SCSI) WRITE 6</td>
<td>Sent</td>
<td>2576</td>
<td>Unchanged</td>
</tr>
<tr>
<td>2Ah</td>
<td>(SCSI) WRITE 10</td>
<td>Sent</td>
<td>10768</td>
<td>Unchanged</td>
</tr>
<tr>
<td>AAh</td>
<td>(SCSI) WRITE 12</td>
<td>Sent</td>
<td>43536</td>
<td>Unchanged</td>
</tr>
<tr>
<td>8Ah</td>
<td>(SCSI) WRITE 16</td>
<td>Sent</td>
<td>35344</td>
<td>Unchanged</td>
</tr>
<tr>
<td>7Ph</td>
<td>(SCSI) WRITE 32</td>
<td>Sent</td>
<td>32528</td>
<td>Unchanged</td>
</tr>
<tr>
<td>2Eh</td>
<td>(SCSI) WRITE AND VERIFY 10</td>
<td>Sent</td>
<td>11792</td>
<td>Unchanged</td>
</tr>
<tr>
<td>AEh</td>
<td>(SCSI) WRITE AND VERIFY 12</td>
<td>Sent</td>
<td>44560</td>
<td>Unchanged</td>
</tr>
<tr>
<td>8Eh</td>
<td>(SCSI) WRITE AND VERIFY 16</td>
<td>Sent</td>
<td>36368</td>
<td>Unchanged</td>
</tr>
<tr>
<td>7Ph</td>
<td>(SCSI) WRITE AND VERIFY 32</td>
<td>Sent</td>
<td>32529</td>
<td>Unchanged</td>
</tr>
<tr>
<td>41h</td>
<td>(SCSI) WRITE SAME 10</td>
<td>Sent</td>
<td>16656</td>
<td>Unchanged</td>
</tr>
<tr>
<td>93h</td>
<td>(SCSI) WRITE SAME 16</td>
<td>Sent</td>
<td>37648</td>
<td>Unchanged</td>
</tr>
</tbody>
</table>
```
<table>
<thead>
<tr>
<th>Opcode</th>
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<td>Unchanged</td>
</tr>
<tr>
<td>CCh</td>
<td>(ATA) WRITE DMA QUEUED</td>
<td>Sent</td>
<td>52224</td>
<td>Unchanged</td>
</tr>
<tr>
<td>C5h</td>
<td>(ATA) WRITE MULTIPLE</td>
<td>Sent</td>
<td>50432</td>
<td>Unchanged</td>
</tr>
<tr>
<td>31h</td>
<td>(ATA) WRITE SECTOR(S) w/o retries</td>
<td>Sent</td>
<td>12544</td>
<td>Unchanged</td>
</tr>
<tr>
<td>C3h</td>
<td>(ATA) WRITE DMA w/o retries</td>
<td>Sent</td>
<td>51968</td>
<td>Unchanged</td>
</tr>
<tr>
<td>3Ch</td>
<td>(ATA) WRITE VERIFY</td>
<td>Sent</td>
<td>15360</td>
<td>Unchanged</td>
</tr>
</tbody>
</table>

36 writes sent, 0 write(s) not blocked, 0 write commands unsupported.

RESULTS: test drive unchanged

run start Tue Jul 3 08:44:35 2018
run finish Tue Jul 3 08:44:36 2018
elapsed time 0:0:1
Normal exit

Status Key:
Sent - the ioctl used to send this command returned without error and the
ATA error bit (if applicable) was not set.
Not supported - the ioctl used to send this command return with an error
status or the command completed with the ATA error bit set.
Test terminated - the test was terminated for dangerous commands because 3
or more previous commands were not blocked.

Result Key:
Unchanged - no changes to the test drive were detected.
Not Blocked - sending this command resulted in a change to the test drive.
This command was NOT blocked!
n/a - Not applicable.

5.1.2. USB 2

/cmd/lib/cgi-bin/test-hwb Tue Jul 3 08:45:27 2018
(#) test-hwb.c Linux Version 1.4 created 06/27/18 at 10:56:14
compiled Jun 27 2018 10:56:31 with gcc Version 5.4.0 20160609
(#) wrapper.c Linux Version 1.5 support lib created 08/03/17 at 13:05:44
(#) ataraw.c Linux Version 1.3 support lib created 08/03/17 at 13:05:44
(#) ataraw.h Linux Version 1.3 created 08/03/17 at 13:06:12
cmd: /usr/lib/cgi-bin/test-hwb -bh -p /media/cftt/FT-LOGS/FT-HWB-firewire/ GP
WoFat FT-HWB-firewire usb2 firewire /dev/sda
operator: GP
host: WoFat
test case: FT-HWB-firewire
connection type: usb2
drive/media type: firewire
device: /dev/sda
34h (ATA) WRITE SECTOR(S) EXT    Sent    13312    Unchanged
39h (ATA) WRITE MULTIPLE EXT      Sent    14592    Unchanged
CEh (ATA) WRITE MULTIPLE FUA EXT  Sent    52736    Unchanged
3Bh (ATA) WRITE STREAM EXT        Sent    15104    Unchanged
35h (ATA) WRITE DMA EXT           Sent    13568    Unchanged
3Dh (ATA) WRITE DMA FUA EXT       Sent    15616    Unchanged
(ATA) WRITE DMA QUEUED EXT
36h                                            Sent    13824    Unchanged
3Eh (ATA) WRITE DMA QUEUED FUA EXT Sent    15872    Unchanged
3Ah (ATA) WRITE STREAM DMA EXT     Sent    14848    Unchanged
38h (ATA) CFA WRITE SECTORS W/O ERASE Sent    14336    Unchanged
(ATA) CFA WRITE MULTIPLE W/O ERASE
CDh (ATA) CFA ERASE SECTORS    Unchanged  Sent    52480    Unchanged

C0h                                            Sent    49152

0Ah  (SCSI) WRITE 6                     Sent    2576     Unchanged
2Ah  (SCSI) WRITE 10                    Sent    10768    Unchanged
AAh  (SCSI) WRITE 12                    Sent    43536    Unchanged
8Ah  (SCSI) WRITE 16                    Sent    35344    Unchanged
7Fh  (SCSI) WRITE 32                    Sent    32528    Unchanged
2Eh  (SCSI) WRITE AND VERIFY 10         Sent    11792    Unchanged
AEh  (SCSI) WRITE AND VERIFY 12         Sent    44560    Unchanged
8Eh  (SCSI) WRITE AND VERIFY 16         Sent    36368    Unchanged
7Fh  (SCSI) WRITE AND VERIFY 32         Sent    32529    Unchanged
41h  (SCSI) WRITE SAME 10              Sent    16656    Unchanged
93h  (SCSI) WRITE SAME 16              Sent    37648    Unchanged
7Fh  (SCSI) WRITE SAME 32              Sent    32530    Unchanged
3Fh  (SCSI) WRITE LONG 10             Sent    16144    Unchanged
9Fh  (SCSI) WRITE LONG 16             Sent    40720    Unchanged
32h  (ATA) WRITE LONG                  Sent    12800    Unchanged
33h  (ATA) WRITE LONG w/o retries      Sent    13056    Unchanged
45h  (ATA) WRITE UNCORRECTABLE EXT     Sent    17664    Unchanged

36 writes sent, 0 write(s) not blocked, 0 write commands unsupported.

RESULTS: test drive unchanged

run start Tue Jul  3 08:45:27 2018
run finish Tue Jul  3 08:45:28 2018
elapsed time 0:0:1
Normal exit

Status Key:
Sent - the ioctl used to send this command returned without error and the ATA error bit (if applicable) was not set.
Not supported - the ioctl used to send this command return with an error status or the command completed with the ATA error bit set.
Test terminated - the test was terminated for dangerous commands because 3 or more previous commands were not blocked.

Result Key:
Unchanged - no changes to the test drive were detected.
Not Blocked - sending this command resulted in a change to the test drive. This command was NOT blocked!
n/a - Not applicable.
5.2. Test Setup & Analysis Tool Versions

Version numbers of tools used are listed.

<table>
<thead>
<tr>
<th>Setup &amp; Analysis Tool Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td>test-hwb.c Linux Version 1.4 created 06/27/18 at 10:56:14</td>
</tr>
</tbody>
</table>

Tool: @(#) ft_hwb_prf_test_report.py Version 1.2 created 04/26/18 at 10:11:19
OS: Linux Version 4.13.0-37-generic
Federated Testing Version 3.1-1, released 06/27/2018