FS-TST 2.0: Forensic Software

Testing Support Tools

Test Summary Report

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Abstract

This NIST Internal Report deals with Release 2.0 of a software package, Forensic Software Testing Support Tools (FS-TST 2.0), developed to aid the testing of disk imaging tools typically used in forensic investigations. The package includes programs that initialize disk drives, detect changes in disk content, and compare pairs of disks. This Internal Report consists of three parts.

Part A, Test Plan, Test Design Specifications, and Test Case Specification, is a companion document. It covers the planning, design, and specification of testing of FS-TST 2.0. The setup of disk drives and the testing is to be performed in the Linux environment; however, some tests will require interaction with the MS-DOS operating system.

This is Part B, Test Summary Report. It reports the result of testing the FS-TST 2.0 package according to Part A. Two programs might have had slightly more convenient behavior in erroneous cases, but no anomalies were found in testing.

Part C, Code Review Report, is an additional companion document. It covers the planning and specification of reviewing all the source code in the package and reports the results of the code reviews. Nothing was found in the code reviews that should cause invalid results, that is, that should lead to an imaging tool with systematic errors being incorrectly passed as adhering to the assertions.

The reader of this document should be familiar with the Linux operating system, computer operation, and computer hardware components such as hard drives.

Keywords: Computer forensic tool; disk imaging; software testing; testing support tools; FS-TST.
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1 Summary

1.1 Items tested
We tested the forensic software testing support tools (FS-TST) version 2.0 (for Linux systems), namely: *diskwipe, partab, diskchg, seccmp, partcmp, diskcmp, corrupt, logsetup, logcase, adjcmp, diskhash, and sechash.*

The following document contains the requirements and user manual for the FS-TST 2.0 tools:


The test plan, test design specifications, and test case specifications are included in the following document:


1.2 Environment
The tests were run in the National Institute of Standards and Technology (NIST) Computer Forensics Tool Testing (CFTT) Laboratory. This section describes the hardware (host computers and hard disk drives) and the software, other than FS-TST, used in the setup, running, and examination of the results of the test cases.

1.2.1 Hardware used for testing

Host Computers:

<table>
<thead>
<tr>
<th>Name</th>
<th>BIOS</th>
<th>HDD Slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMillan</td>
<td>Extended</td>
<td>3 IDE + 2 SCSI</td>
</tr>
<tr>
<td>Frank</td>
<td>Extended</td>
<td>2 IDE + 2 SCSI + 2 SATA</td>
</tr>
</tbody>
</table>

Hard Disk Drives:

<table>
<thead>
<tr>
<th>Label</th>
<th>Model</th>
<th>Interface</th>
<th>Sectors</th>
<th>GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>3B</td>
<td>MAG3091L SUN9.0G</td>
<td>SCSI</td>
<td>17,689,266</td>
<td>8</td>
</tr>
<tr>
<td>7F</td>
<td>MAXTOR 6L040J2</td>
<td>IDE</td>
<td>78,177,792</td>
<td>40</td>
</tr>
<tr>
<td>80</td>
<td>WDC WD800BB-00CAA1</td>
<td>IDE</td>
<td>156,301,488</td>
<td>80</td>
</tr>
<tr>
<td>81</td>
<td>WDC WD800BB-00CAA1</td>
<td>IDE</td>
<td>156,301,488</td>
<td>80</td>
</tr>
<tr>
<td>82</td>
<td>WDC WD800BB-00CAA1</td>
<td>IDE</td>
<td>156,301,488</td>
<td>80</td>
</tr>
<tr>
<td>CC</td>
<td>SEAGATE ST336705LC</td>
<td>SCSI</td>
<td>71,687,370</td>
<td>34</td>
</tr>
<tr>
<td>10B</td>
<td>WDC WD2500JD-22F</td>
<td>SATA</td>
<td>488,397,168</td>
<td>250</td>
</tr>
</tbody>
</table>

1.2.2 Software used for testing
Disk Editor (diskedit), Version 8.0, Symantec Corporation.
Disk Editor (diskedit), Norton Utilities 2002, Symantec Corporation.
Linux 8.2 Operating System.
Fedora Core 3 (Red Hat) Operating System.
NIST Forensics Software Testing Support Tools FS-TST 1.0 (for DOS)
NIST Computer Forensic Reference Data Sets (CFReDS) script cal-drive.csh (see
http://www.cfreds.nist.gov/) and two variants of this script, cal-drive-count.csh and cal-
drive-count-seek.csh.

2 Variances
No variances were made from the test plan or the test design specification.

3 Summary of Results
Each FS-TST 2.0 tool passed all tests.

3.1 Observations
Some observations were made during testing. These are collected here.

Because the design of partition table entries in the file system have a limited number of
bits, C/H/S start and end addresses cannot express more than 1023 cylinders and C/H/S
addresses above 1023 cylinders are incorrect in the partition table. Tools such as partab
accurately report the contents of the partition table.

If the partition table has invalid information, like cases pcm-07 and pcm-08, partcmp
could have detected the erroneous condition earlier and produced messages which were
more helpful to the user.

3.2 Test Case Results
The table below provides a description of the headings used in the test results summaries:

<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 the software tool tested.</td>
</tr>
<tr>
<td>Case Summary:</td>
<td>Test case summary extracted from the document Test Design Specification for the tool under test.</td>
</tr>
<tr>
<td>Tester Name:</td>
<td>Name or initials of person executing the test procedure.</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Time and date that test was started.</td>
</tr>
<tr>
<td>PC:</td>
<td>Name and BIOS of computer where the tool under test was executed.</td>
</tr>
<tr>
<td>Disks:</td>
<td>Description of the hard disks used in the test as the source, destination, and media. Sometimes we attached the BIOS-assigned drive number in hexadecimal, as well as the Linux device name.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Documentation of each command executed during the test.</td>
</tr>
<tr>
<td>Log files and location:</td>
<td>Name and location of the log files in the test file archive.</td>
</tr>
<tr>
<td>Log File Highlights:</td>
<td>Selected entries from the test case log files.</td>
</tr>
</tbody>
</table>
### 3.2.1 Diskwipe Test Results Summary

<table>
<thead>
<tr>
<th>Case Dkw-01</th>
</tr>
</thead>
</table>
| **Case summary:** | Test whether diskwipe:  
- displays a summary of the command line arguments and options.  
- displays the program, support libraries if any, and header files if any  
- logs the hard disk drive we select to be wiped  
- creates a new log file on the log disk with the default name for a destination disk  
- logs the comment supplied with the -comment option  
- logs all other required information  
- wipes the hard disk |
| **Tester name:** | Serban |
| **Test date:** | Thu Mar 31 11:23:03 2005 |
| **PC:** | Mcmillan |
| **Disks:** | Destination: /dev/sda, external label “CC”, model ST336705LC serial # 3DE03HL300008110CEHF. |
| **Execute:** | Boot to Red Hat Linux (OS on disk labeled 81). Run command:  
diskwipe dkw-01 mcmillan serban /dev/sda CC -comment Wipeout |
| **Log files location:** | Test-archive/diskwipe/dkw-01/ |
| **Log file highlights:** | Wipedlog.txt:  
diskwipe @(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21  
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)  
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12  
support lib compiled Mar 25 2005 at 19:16:46  
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24  
cmd: diskwipe dkw-01 mcmillan serban /dev/sda CC -comment Wipeout  
TEST dkw-01 HOST mcmillan OPERATOR serban  
Comment: Wipeout  
Wipe Drive /dev/sda  
04461/254/63 (max cyl/hd values) |
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
71687370 sectors wiped with CC
run start Thu Mar 31 11:23:03 2005
run finish Thu Mar 31 12:20:09 2005
elapsed time 0:57:6
Normal exit

Expected results: Disk initialized with 0xCC. All required information logged in the log file “wipedlog.txt”.
Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Dkw-02
Case summary: test whether diskwipe -creates a new log file when we specify -new_log, even though a log file with the same name already exists. -logs a multi-word comment -handles -noask correctly

Tester name: serban
Test date: Thu Mar 31 13:47:36 2005
PC: Mcmillan

Disks: Destination: /dev/sda, external label “CC”, model
ST336705LC serial # 3DE03HL300008110CEHF

Execute: Boot to Red Hat Linux (disk labeled 81).
Run diskwipe to wipe out the destination disk:
diskwipe dkw-02 mcmillan serban /dev/sda CC -new_log
-comment “Wiping a destination disk” -noask

Log files location: Test-archive/diskwipe/dkw-02
Log file highlights:
Wipedlog.txt:
diskwipe @(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: diskwipe dkw-02 mcmillan serban /dev/sda CC -new_log -comment "Wiping a destination disk" -noask
TEST dkw-02 HOST mcmillan OPERATOR serban
Comment: Wiping a destination disk
Wipe Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
71687370 sectors wiped with CC
run start Thu Mar 31 13:47:36 2005
run finish Thu Mar 31 14:43:28 2005
elapsed time 0:55:52
Normal exit

Expected results:
A new log file “wipedlog.txt” is created.
Disk was initialized with 0xCC.
Required information logged.

Actual results:
No anomalies detected.

Analysis:
Expected results achieved.

Case Dkw-03

Case summary: Test whether diskwipe
-p promts for a comment when no comment is supplied
-appends the log records to an existing log file
-fills the sectors according to the -heads option

Tester name: Serban
Test date: Thu Mar 31 14:56:31 2005
PC: Mcmillan
Disks: Destination: /dev/sda, external label “CC”, model
ST336705LC serial # 3DE03HL300008110CEHF

Execute: Run diskwipe:
diskwipe dkw-03 mcmillan serban /dev/sda CC -dst
-noask -heads 200

Log files location: Test-archive/diskwipe/dkw-03

Log file highlights:
---old contents – from dkw-02 – followed by---
diskwipe @(#) diskwipe.c Linux Version 1.4 Created
03/18/05 at 14:49:21
3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at
09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at
10:53:24
cmd: diskwipe dkw-03 mcmillan serban /dev/sda CC -dst
Comment: Initialize destination disk using a new geometry

Wipe Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
Override number of heads from 255 to 200
71687370 sectors wiped with CC
run start Thu Mar 31 14:56:31 2005
run finish Thu Mar 31 15:51:58 2005
eelapsed time 0:55:27
Normal exit

Expected results: The log records are appended to the log file created for
/dst by test dkw-02.
Logged information is correct.
Disk is initialized correctly for the new geometry.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

---

Case Dkw-04

Case summary: test whether diskwipe creates a log file with a special
name for a source hard disk.

Tester name: Serban
Test date: Mar 31 16:24:14 2005
PC: Mcmillan
Disks: Source: /dev/hdb, external label “7F”, model MAXTOR
6L040J2 serial # 662201137770

Execute:
Run diskwipe:
diskwipe dkw-04 mcmillan serban /dev/hdb 7F -src -noask

Log files location: Test-archive/diskwipe/dkw-04

Log file highlights: Wipeslog.txt:
diskwipe @(#) diskwipe.c Linux Version 1.4 Created
03/18/05 at 14:49:21
3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at
09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at

---

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cmd: diskwipe dkw-04 mcmillan serban /dev/hdb 7F -src -noask
TEST dkw-04 HOST mcmillan OPERATOR serban
Comment: Initialize a source disk

Wipe Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
78177792 sectors wiped with 7F
run start Thu Mar 31 16:24:14 2005
run finish Thu Mar 31 17:23:32 2005
elapsed time 0:59:18
Normal exit

Expected results:  
New log file for source disk “wipeslog.txt” is created.
Required information is logged.
The source disk is initialized correctly.

Actual results:  
No anomalies detected.

Analysis:  
Expected results achieved.

Case Dkw-05
Case summary:  
test whether diskwipe creates a log file with a special name for a media hard disk.

Tester name:  
serban

Test date:  
Thu Mar 31 18:01:07 2005

PC:  
Mcmillan

Disks:  
Media: /dev/hdb, external label “7F”, model MAXTOR 6L040J2 serial # 662201137770

Execute:  
Run diskwipe:
diskwipe dkw-05 mcmillan serban /dev/hdb 7F -media -noask

Log files location:  
Test-archive/diskwipe/dkw-05

Log file highlights:  
Wipenlog.txt:
diskwipe @(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at
10:53:24

**cmd:** diskwipe dkw-05 mcmillan serban /dev/hdb 7F -noask -media

**TEST dkw-05 HOST mcmillan OPERATOR serban**

**Comment:** Initialize a media disk

Wipe Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
7817792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
7817792 sectors wiped with 7F
run start Thu Mar 31 18:01:07 2005
run finish Thu Mar 31 19:00:26 2005
elapsed time 0:59:19
Normal exit

**Expected results:**
New log file for media disk “wipemlog.txt” is created.
Required information is logged.
The media disk is initialized correctly.

**Actual results:**
No anomalies detected.

**Analysis:**
Expected results achieved.

---

**Case Dkw-06**

**Case summary:**
Test whether **diskwipe** creates a log file with a name given in the -log_name option for a destination disk

**Tester name:**
serban

**Test date:**
Fri Apr  1 08:45:47 2005

**PC:**
Mcmillan

**Disks:**
Destination: /dev/sda, external label “3B”, model MAG3091L SUN9.0G, serial # 02464303

**Execute:**
Run **diskwipe**:
diskwipe dkw-06 mcmillan serban /dev/sda 3B -noask -log_name dkvlog.txt

**Log files location:**
Test-archive/diskwipe/dkw-06

**Log file highlights:**

**dkvlog.txt:**
diskwipe @(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at
cmd: diskwipe dkw-06 mcmillan serban /dev/sda 3B -noask -log_name dkwlog.txt
TEST dkw-06 HOST mcmillan OPERATOR serban
Comment: Use alternate log file name
Wipe Drive /dev/sda
01100/254/63 (max cyl/hd values)
01101/255/63 (number of cyl/hd)
17689267 total number of sectors
Non-IDE disk
Model (MAG3091L SUN9.0G) serial # (02464303 )
17689267 sectors wiped with 3B
run start Fri Apr 1 08:45:47 2005
run finish Fri Apr 1 09:02:59 2005
elapsed time 0:17:12
Normal exit

Expected results: A new log file with the alternate name “dkwlog.txt” is created.
Required information is logged.
The destination disk is initialized correctly.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

Case Dkw-07
Case summary: test whether diskwipe appends the log for a source disk to a log file with an alternate name when that file already exists.

Tester name: serban
Test date: Fri Apr 1 09:09:12 2005
PC: Mcmillan
Disks: Source: /dev/sda, external label “3B”, model MAG3091L SUN9.0G, serial # 02464303

Execute: Run diskwipe:
diskwipe dkw-07 mcmillan serban /dev/sda 4B -noask -src -log_name dkwlog.txt

Log files location: Test-archive/diskwipe/dkw-07
Log file highlights: dkwlog.txt:
---old contents of dkwlog.txt -- followed by---
diskwipe @(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at
Case Dkw-08

Case summary: test whether diskwipe creates a new log file with a name given in the `-log_name` option, even though a log file with the same name exists and the `-new_log` option is used.

Tester name: Serban

Test date: Fri Apr 09 17:16:40 2005

PC: Mcmillan

Disks: Destination: /dev/sda, external label “3B”, model MAG3091L SUN9.0G, serial # 02464303

Execute: Run diskwipe:
diskwipe dkw-08 mcmillan serban /dev/sda 5B -noask -new_log -log_name dkwlog.txt

Log files location: Test-archive/diskwipe/dkw-08

Log file highlights: dkwlog.txt:
diskwipe @(#) diskwipe.c Linux Version 1.4 Created
03/18/05 at 14:49:21
3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at
09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at
10:53:24
cmd: diskwipe dkw-08 mcmillan serban /dev/sda 5B -
noask -new_log -log_name dkwlog.txt
TEST dkw-08 HOST mcmillan OPERATOR serban
Comment: New log file with alternate name

Wipe Drive /dev/sda
01100/254/63 (max cyl/hd values)
01101/255/63 (number of cyl/hd)
17689267 total number of sectors
Non-IDE disk
Model (MAG3091L SUN9.0G) serial # (02464303)
17689267 sectors wiped with 5B
run start Fri Apr  1 17:16:40 2005
run finish Fri Apr  1 17:33:44 2005
elapsed time 0:17:4
Normal exit

Expected results:  A new log file with the alternate name “dkwlog.txt” is
created, although an old one with the same name exists.
Required information is logged.
The disk is initialized correctly.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Dkw-09
Case summary: test diskwipe on a very large Serial ATA hard disk drive.
Tester name: Serban
Test date: Mon Mar 28 15:44:48 2005
PC: Frank
Disks: Destination: /dev/sda, external label “10B”, model WDC
        WD2500JD-22F, serial # WD-WMAEH2677545.
Execute: Run diskwipe:
diskwipe dkw-09 frank serban /dev/sda AA -new_log -
        noask
Log files location: Test-archive/diskwipe/dkw-09
Log file highlights: dkwlog.txt:
diskwipe @(#) diskwipe.c Linux Version 1.4 Created
cmd: diskwipe dkw-09 frank serban /dev/sda AA -new_log -noask
TEST dkw-09 HOST frank OPERATOR serban
Comment: Wipe out a SATA disk

Wipe Drive /dev/sda
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-WMAEH2677545)
488397168 sectors wiped with AA
run start Mon Mar 28 15:44:48 2005
run finish Mon Mar 28 20:10:10 2005
elapsed time 4:25:22
Normal exit

Expected results: A log file for the destination disk “wipedlog.txt” is created.
Required information is logged.
The disk is initialized correctly.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

Case Dkw-10

Case summary: Run diskwipe without arguments, with incorrect arguments, with the -h option alone on the command line, with correct arguments and the -h option on the command line, and capture its standard output into a file.

Tester name: Serban
Test date: Fri Apr 1 17:36:56 2005
PC: McMillan
Disks: None.
Execute: Run diskwipe:
diskwipe > output.txt
diskwipe dkw-10 mcmillan serban -logname >> output.txt
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>diskwipe -h</code></td>
<td>Redirect the output to a file.</td>
</tr>
<tr>
<td><code>diskwipe dkw-10 mcmillan serban /dev/sda CC -h</code></td>
<td>Wipe the source disk.</td>
</tr>
</tbody>
</table>

**Log files location:**
Test-archive/diskwipe/dkw-10

**Log file highlights:**

```
output.txt:
diskwipe Fri Apr  1 17:36:56 2005
@(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21
Compiled Mar 25 2005 19:16:47 with CC Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
cmd: diskwipe
Drive /dev/hdb
Usage: diskwipe test-case host operator drive fill [-options]
-src   Wipe a source disk
-media Wipe a media disk
-dst   Wipe a destination disk (default)
-heads nnn Override number of heads from BIOS with nnn
-comment "..." Give a comment on command line
-noask Suppress confirmation dialog
-new_log Start a new log file (default is append to old log file)
-log_name <name> Use a different log file (default is wipedlog.txt)
-h Print this option list
```

```
diskwipe Fri Apr  1 17:37:29 2005
@(#) diskwipe.c Linux Version 1.4 Created 03/18/05 at 14:49:21
Compiled Mar 25 2005 19:16:47 with CC Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
cmd: diskwipe dkw-10 mcmillan serban /dev/hdb 7F -logname
Drive /dev/hdb
Invalid parameter: -logname
Usage: diskwipe test-case host operator drive fill [-options]
-src   Wipe a source disk
-media Wipe a media disk
-dst   Wipe a destination disk (default)
-heads nnn Override number of heads from BIOS with nnn
-comment "..." Give a comment on command line
-noask Suppress confirmation dialog
-new_log Start a new log file (default is append to
<table>
<thead>
<tr>
<th>Old log file</th>
<th>-log_name &lt;name&gt; Use a different log file (default is wipedlog.txt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>Print this option list</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected results:</th>
<th>Diskwipe displays its usage mode in each case.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
### 3.2.2 Partab Test Results Summary

<table>
<thead>
<tr>
<th>Case Ptb-01</th>
<th></th>
</tr>
</thead>
</table>
| **Case summary:** | Run `partab` on a (SCSI) disk with no partition table or with an empty partition table (all 4 entries of the MBR partition table empty). Use:  
-the `-all` option to list all entries, even empty;  
-the `-comment` option with one-word comment. |
| **Tester name:** | Serban |
| **Test date:** | Sun Apr 3 12:15:27 2005 |
| **PC:** | McMillan |
| **Disks:** | /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| **Execute:** | Run `partab` twice: first when the disk has no partition table, then when the disk has a partition table with all entries empty:  
`partab` ptb-01 mcmillan serban /dev/sda CC -all -comment NoTable  
`partab` ptb-01 mcmillan serban /dev/sda CC -all -comment EmptyTable |
| **Log files location:** | Test-archive/partab/ptb-01 |
| **Log file highlights:** | Pt-sda-log.txt:  
`partab` @(#) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30  
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)  
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12  
support lib compiled Mar 25 2005 at 19:16:46  
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24  
cmd: partab ptb-01 mcmillan serban /dev/sda CC -all -comment NoTable  
TEST ptb-01 HOST mcmillan OPERATOR serban  
Comment: NoTable  
Drive label: CC  
Partition table Drive /dev/sda  
04461/254/63 (max cyl/hd values)  
04462/255/63 (number of cyl/hd)  
71687370 total number of sectors  
Non-IDE disk  
Model (ST336705LC ) serial # (3DE03HL300008110CEHF)  
Error reading partition table, code -1 |
| Expected results: | Partab creates a log file with the name specific for the hard disk drive used in test case, “pt-sda-log.txt”. It appends the log record for the second command to the |
same log file created by the first partab command. Partab logs all required information, including the fact that no partition table was found, or that all 4 entries are empty.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

---

**Case Ptb-02**

**Case summary:** Run partab on a (SCSI) disk with a primary FAT16 partition on it. Use:
- the –all option to list all entries, even empty;
- the –new_log option to create a new log file although one with the same name already exists;
- the –comment option with a multi-word comment.

**Tester name:** Serban

**Test date:** Sun Apr 3 12:42:58 2005

**PC:** McMillan

**Disks:** /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:** Run partab:
partab ptb-02 mcmillan serban /dev/sda CC -new_log -all -comment “Primary FAT16 partition”

**Log files location:** Test-archive/partab/ptb-02

**Log file highlights:**

```
Pt-sda-log.txt:
partab @(##) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

```

```
cmd: partab ptb-02 mcmillan serban /dev/sda CC -new_log -all -comment Primary FAT16 partition
TEST ptb-02 HOST mcmillan OPERATOR serban
Comment: Primary FAT16 partition
Drive label: CC
Partition table Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
```
### Case Ptb-03

**Case summary:** Run `partab` on a (SCSI) disk with a primary FAT32 partition on it. Use:
- the `-all` option to list all entries, even empty.
- interactive comment;
- the log file created in the previous case, in order to append the log records to it.

**Tester name:** Serban

**Test date:** Sun Apr 3 12:55:33 2005

**PC:** McMillan

**Disks:** /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:** Run `partab`:
partab ptb-03 mcmillan serban /dev/sda CC -all

**Log files location:** Test-archive/partab/ptb-03

**Log file highlights:** `Pt-sda-log.txt`
-----log of the previous case-----
partab @(#) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: partab ptb-03 mcmillan serban /dev/sda CC -all
TEST ptb-03 HOST mcmillan OPERATOR serban FAT32, append log

Drive label: CC
Partition table Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC  ) serial #
(3DE03HL300008110CEHF)
N Start LBA Length Start C/H/S End C/H/S boot Partition type
 1 P 0000000063 000417627 0000/001/01 0025/254/63 0B Fat32
 2 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
 3 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
 4 P 000000000 000000000 0000/000/00 0000/000/00 00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
run start Sun Apr  3 12:55:33 2005
run finish Sun Apr  3 12:55:47 2005
elapsed time 0:0:14
Normal exit

| Expected results: | Partab appends the log records to the existing log "pt-sda-
| | log.txt" created in the previous case.
| | It displays the FAT32 partition entry information
| | correctly, as well as the empty entries.
| | It logs all required information. |
| Actual results:   | No anomalies detected. |
### Analysis:

Expected results achieved.

<table>
<thead>
<tr>
<th><strong>Case Ptb-04</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong></td>
</tr>
<tr>
<td><strong>Tester name:</strong></td>
</tr>
<tr>
<td><strong>Test date:</strong></td>
</tr>
<tr>
<td><strong>PC:</strong></td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
</tr>
</tbody>
</table>

- partab ptb-04 mcmillan serban /dev/hdb 7F –all
- partab ptb-04 mcmillan serban /dev/hdb 7F -all -log_name ptblog.txt |
| **Log files location:** | Test-archive/partab/ptb-04 |
| **Log file highlights:** | **Pt-hdb-log.txt:** |

- partab @(#) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30
- compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
- @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
- support lib compiled Mar 25 2005 at 19:16:46
- @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
- cmd: partab ptb-04 mcmillan serban /dev/hdb 7F -all
- TEST ptb-04 HOST mcmillan OPERATOR serban
- Comment: NTFS partition, default log file name

- Drive label: 7F
- Partition table Drive /dev/hdb
- 04865/254/63 (max cyl/hd values)
- 04866/255/63 (number of cyl/hd)
- 78177792 total number of sectors
- IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)
- N Start LBA Length Start C/H/S End C/H/S boot
- Partition type
  - 1 P 000032193 000417627 0002/001/01 0027/254/63
07 NTFS
2 P 000000000 000000000 0000/00/00 0000/00/00 0000/00/00 00 empty entry
3 P 000000000 000000000 0000/00/00 0000/00/00 0000/00/00 00 empty entry
4 P 000000000 000000000 0000/00/00 0000/00/00 0000/00/00 00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
run start Sun Apr 3 13:14:39 2005
run finish Sun Apr 3 13:15:02 2005
elapsed time 0:0:23
Normal exit

Ptblog.txt:
partab @(#) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30
3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: partab ptb-04 mcmillan serban /dev/hdb 7F -all -
log_name ptblog.txt
TEST ptb-04 HOST mcmillan OPERATOR serban
Comment: NTFS partition, alternate log file name

Drive label: 7F
Partition table Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
N Start LBA Length Start C/H/S End C/H/S boot
Partition type
1 P 000032193 000417627 0002/01/01 0027/254/63
07 NTFS
2 P 000000000 000000000 0000/00/00 0000/00/00 0000/00/00 00 empty entry
3 P 000000000 000000000 0000/00/00 0000/00/00 0000/00/00 00 empty entry
4 P 0000000000 0000000000 0000/000/00 0000/000/00 00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
run start Sun Apr  3 13:14:03 2005
run finish Sun Apr  3 13:14:22 2005
elapsed time 0:0:19
Normal exit

Expected results:
When run for the first time, partab creates a new log file “pt-hdb-log.txt” for the device /dev/hdb. The second command creates a log file with the alternate name “ptblog.txt”.
In both cases, partab displays the NTFS partition entry information correctly, as well as the empty entries.
It logs all required information.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

---

**Case Ptb-05**

**Case summary:** Run partab on an IDE disk with large (>8GB) primary FAT32 and Linux Ext2 partitions, and a Linux swap partition. Use:
-the -log_name option to specify the same alternate log file name as in the previous case – in order to test whether the log records are appended to the existing log file;
-the -all option.

**Tester name:** Serban
**Test date:** Sun Apr  3 18:47:35 2005
**PC:** McMillan
**Disks:** /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

**Execute:** Run partab:

```
partab ptb-05 mcmillan serban /dev/hdb 7F -all -log_name ptblog.txt
```

**Log files location:** Test-archive/partab/ptb-05
**Log file highlights:** **Ptblog.txt:**

```
-----Log records of previous case followed by-----

partab @(#) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30
```

---
Partab appends the log records to the existing log file "ptblog.txt". It displays the NTFS partition entry information correctly, as well as the empty entries. It logs all required information.

Expected results: Partab appends the log records to the existing log file "ptblog.txt". It displays the NTFS partition entry information correctly, as well as the empty entries. It logs all required information.

Actual results: No anomalies detected.

Analysis: Expected results achieved.
## Case Ptb-06

### Case summary:
Run `partab` on an IDE disk with a primary FAT16 partition, a primary FAT32 hidden partition, a primary HPFS hidden partition, and a primary unformatted partition. Use:
- the `-new_log` option and the `-log_name` option to specify the same alternate log file name as in the previous case – in order to test whether `partab` creates a new log file with the same alternate name if one already exists.
- the `--all` option.

### Tester name:
Serban

### Test date:
Sun Apr  3 19:04:17 2005

### PC:
McMillan

### Disks:
/dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

### Execute:
Run `partab`.

d partab ptb-06 mcmillan serban /dev/hdb 7F --all --new_log --log_name ptblog.txt

### Log files location:
Test-archive/partab/ptb-06

### Log file highlights:

#### Ptblog.txt:
```
partab @(#) partab.c Linux Version 1.4 Created 03/21/05 at 09:09:30
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: partab ptb-06 mcmillan serban /dev/hdb 7F --all --new_log --log_name ptblog.txt
TEST ptb-06 HOST mcmillan OPERATOR serban
Comment: Various primary partitions, new alternate log file
```

### Drive label: 7F
Partition table Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)
N Start LBA Length Start C/H/S End C/H/S boot
Partition type
<table>
<thead>
<tr>
<th>Expected results:</th>
<th>Partab creates a new log file “ptblog.txt”, although one with the same name exists. It displays the partition table entry information correctly. It logs all required information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
Drive label: CC
Partition table Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL30008110CEHF)
N Start LBA Length Start C/H/S End C/H/S boot
Partition type
1 P 000000063 008193087 0000/001/01 0509/254/63
0B Fat32
2 P 008193150 008193150 0510/000/01 1019/254/63
83 Linux
3 X 016386300 001863540 1020/000/01 1023/254/63
0F extended
4 S 000000063 000417627 1020/001/01 1023/254/63
06 Fat16
5 x 000417690 000819315 1023/000/01 1023/254/63
05 extended
6 S 000000063 000819252 1023/001/01 1023/254/63
0B Fat32
7 x 001237005 000626535 1023/000/01 1023/254/63
05 extended
8 S 000000063 000626472 1023/001/01 1023/254/63
07 NTFS
9 S 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
10 P 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
run start Sun Apr 3 18:49:45 2005
run finish Sun Apr 3 18:50:03 2005
elapsed time 0:0:18
Normal exit

Expected results: Partab creates a new log file "pt-sda-log.txt".
It displays the partition table entry information correctly. It logs all required information.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Ptb-08</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong> Run partab without arguments, with incorrect arguments, with the –h option alone on the command line, and with correct arguments and the –h option. Capture the standard output into a file.</td>
</tr>
<tr>
<td><strong>Tester name:</strong> Serban</td>
</tr>
<tr>
<td><strong>Test date:</strong> Sun Apr 3 19:12:00 2005</td>
</tr>
<tr>
<td><strong>PC:</strong> McMillan</td>
</tr>
<tr>
<td><strong>Disks:</strong> None.</td>
</tr>
<tr>
<td><strong>Execute:</strong> Run <strong>partab</strong>: partab &gt; output.txt partab ptb-08 mcmillan serban /dev/sda –logname &gt;&gt; output.txt partab –h &gt;&gt; output.txt partab ptb-08 mcmillan serban /dev/sda CC –all –h &gt;&gt; output.txt</td>
</tr>
<tr>
<td><strong>Log files location:</strong> Test-archive/partab/ptb-08</td>
</tr>
</tbody>
</table>
| **Log file highlights:** **Output.txt:** partab compiled at 19:16:47 on Mar 25 2005 Usage: partab test-case host operator drive label [–options] –all List extended partitions –comment "..." Comment for log file –new_log Start a new log file (default is append to old log file) –log_name <name> Use a different log file (default is pt-label-log.txt and is written to the current directory) –h Print this option list ...

Expected results: **Partab** displays its usage mode in each case.
Actual results: No anomalies detected.
Analysis: Expected results achieved.
3.2.3 *Diskchg* Test Results Summary

<table>
<thead>
<tr>
<th>Case Dch-01</th>
<th></th>
</tr>
</thead>
</table>
| **Case summary:** | Test the `-exam` function of *diskchg* on a SCSI disk that was initialized by using the *diskwipe* tool. Use:  
- the `-exam` option:  
- the `-comment` option with one-word comment. |
| **Tester name:** | Serban |
| **Test date:** | Sun Apr 3 09:43:11 2005 |
| **PC:** | McMillan |
| **Disks:** | /dev/sda, external label “CC”, model ST336705LC, serial #3DE03HL30008B010CEHF. |
| **Execute:** | Run *diskchg*: |
| | `diskchg dch-01 mcmillan serban /dev/sda -exam -comment TestExamineFuntion` |
| | When prompted, enter LBA and C/H/S addresses for the first, last, and somewhere in the middle, sectors (plus an offset and a length). For example,  
0 0 32  
0/0/1 0 32  
71687369 0 32  
4462/84/48 0 32  
80388 0 32  
5/1/0 0 32  
96453 0 32  
6/1/1 0 32 |
| **Log files location:** | Test-archive/diskchg/dch-01 |
| **Log file highlights:** | **Cg-sda-xlog.txt**:  
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32  
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)  
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12  
support lib compiled Mar 25 2005 at 19:16:46  
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24  
cmd: diskchg dch-01 mcmillan serban /dev/sda -exam -comment TestExamineFuntion  
TEST dch-01 HOST mcmillan OPERATOR serban  
Comment: TestExamineFuntion  
Target disk Drive /dev/sda |
<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 0 C/H/S 0/0/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 2F 30 30 30 2F 30 31 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 30 30 30 30 30 30 30 30 30 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 0 C/H/S 0/0/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 2F 30 30 30 2F 30 31 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 30 30 30 30 30 30 30 30 30 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 71687369 C/H/S 4462/84/48 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 34 34 36 32 2F 30 38 34 2F 34 38 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 37 31 36 38 37 33 36 39 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 71687369 C/H/S 4462/84/48 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 34 34 36 32 2F 30 38 34 2F 34 38 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 37 31 36 38 37 33 36 39 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 80388 C/H/S 5/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 80388 C/H/S 5/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 96453 C/H/S 6/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 36 2F 30 30 31 2F 30 31 20 30 30 30</td>
<td></td>
</tr>
<tr>
<td>016: 30 30 30 30 39 36 34 35 33 00 CC CC CC CC CC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offset 0 length 32</th>
<th>Disk addr lba 96453 C/H/S 6/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 36 2F 30 30 31 2F 30 31 20 30 30 30</td>
<td></td>
</tr>
</tbody>
</table>

04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
016: 30 30 30 30 39 36 34 35 33 00 CC CC CC CC CC CC CC
run start Sun Apr 3 09:43:11 2005
run finish Sun Apr 3 09:44:57 2005
elapsed time 0:1:46
Normal exit

Expected results: Diskchg creates a log file “cg-sda-xlog.txt”, whose name reflects the device (/dev/sda in this case) and the function tested (x, i.e., exam).
It displays the sectors correctly.
It logs all required information.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Dch-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary: Test the -exam function of diskchg on a hard disk on the same Linux device as in the previous case (in order to test that diskchg appends the log records to an existing log file. Use: -the -exam option; -the -comment option with a multi-word comment.</td>
</tr>
<tr>
<td>Tester name: Serban</td>
</tr>
<tr>
<td>Test date: Sun Apr 3 09:48:54 2005</td>
</tr>
<tr>
<td>PC: McMillan</td>
</tr>
<tr>
<td>Disks: /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td>Execute: Run diskchg.</td>
</tr>
<tr>
<td>Log files location: Test-archive/diskchg/dch-02</td>
</tr>
<tr>
<td>Log file highlights: Cg-sda-xlog.txt: -----Log records created in the previous test case. followed by----- diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
</tbody>
</table>
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: diskchg dch-02 mcmillan serban /dev/sda -exam -
comment Test -exam, append log records

TEST dch-02 HOST mcmillan OPERATOR serban

Comment: Test -exam, append log records

Target disk Drive /dev/sda

04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors

Non-IDE disk

Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Offset 0 length 32
Disk addr lba 176714 C/H/S 10/254/63 offset 0
000: 30 30 30 31 30 2F 32 35 34 2F 36 33 20 30 30 30
016: 30 30 30 31 37 36 37 31 34 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176715 C/H/S 11/0/1 offset 0
000: 30 30 30 31 31 2F 30 30 30 2F 30 31 20 30 30 30
016: 30 30 30 31 37 36 37 31 35 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176716 C/H/S 11/0/2 offset 0
000: 30 30 30 31 31 2F 30 30 30 2F 30 32 20 30 30 30
016: 30 30 30 31 37 36 37 31 36 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176714 C/H/S 10/254/63 offset 0
000: 30 30 30 31 30 2F 32 35 34 2F 36 33 20 30 30 30
016: 30 30 30 31 37 36 37 31 34 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176715 C/H/S 11/0/1 offset 0
000: 30 30 30 31 31 2F 30 30 30 2F 30 31 20 30 30 30
016: 30 30 30 31 37 36 37 31 35 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176716 C/H/S 11/0/2 offset 0
000: 30 30 30 31 31 2F 30 30 30 2F 30 32 20 30 30 30
016: 30 30 30 31 37 36 37 31 36 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176715 C/H/S 11/0/1 offset 0
000: 30 30 30 31 31 2F 30 30 30 2F 30 31 20 30 30 30
016: 30 30 30 31 37 36 37 31 35 00 CC CC CC CC CC

Offset 0 length 32
Disk addr lba 176716 C/H/S 11/0/2 offset 0
000: 30 30 30 31 31 2F 30 30 30 2F 30 32 20 30 30 30
016: 30 30 30 31 37 36 37 31 36 00 CC CC CC CC CC

run start Sun Apr 3 09:48:54 2005
run finish Sun Apr 3 09:51:04 2005
elapsed time 0:2:10
Normal exit

Expected results:
Diskchg appends the log records to the log file "cg-sda-xlog.txt" created in the previous case.
It displays the sectors correctly.
It logs all required information.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Dch-03

Case summary: Test the –exam function of diskchg on a hard disk on the same Linux device as in the previous case, in order to test that diskchg creates a new log file, although a log file with the same name already exists. Also, test whether diskchg detects sector addresses outside the disk range. Use:
-the -exam option;
-the -new_log option;
-an interactive comment.

Tester name: Serban
Test date: Sun Apr 3 09:53:27 2005
PC: McMillan
Disks: /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

Execute:
Run diskchg:

diskchg dch-03 mcmillan serban /dev/sda -exam -new_log

When prompted, enter LBA and C/H/S addresses for sectors beyond the end of the disk.

Log files location: Test-archive/diskchg/dch-03
Log file highlights:
Cg-sda-xlog.txt:
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: diskchg dch-03 mcmillan serban /dev/sda -exam -new_log
TEST dch-03 HOST mcmillan OPERATOR serban
Comment: Create new log file, specify sector(s) outside disk range.
Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Offset 0 length 32
Disk addr lba 71687370  C/H/S 4462/84/49 offset 0
Disk read error 0x01 at sector 4462/84/49

Offset 0 length 32
Disk addr lba 71687380  C/H/S 4462/84/59 offset 0
Disk read error 0xFFFFFFFF at sector 4462/84/59

Offset 0 length 32
Disk addr lba 72000000  C/H/S 4481/202/10 offset 0
Disk read error 0xFFFFFFFF at sector 4481/202/10

Offset 0 length 32
Disk addr lba 72000000  C/H/S 4481/202/10 offset 0
Disk read error 0xFFFFFFFF at sector 4481/202/10

run start Sun Apr 3 09:53:27 2005
run finish Sun Apr 3 09:56:39 2005
elapsed time 0:3:12
Normal exit

Expected results: Diskchg creates a new log file cg-sda-xlog.txt.
It detects the sector addresses that are beyond the disk end and issues some error message.
It logs all required information.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Dch-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary: Test the -read function of diskchg on a SCSI hard disk. Use: -the -read option with a sector LBA address, offset, and length.</td>
</tr>
<tr>
<td>Tester name: Serban</td>
</tr>
<tr>
<td>Test date: Sun Apr 3 09:59:09 2005</td>
</tr>
</tbody>
</table>
PC: McMillan

Disks: /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

Execute: Run diskchg:

diskchg dch-04 mcmillan serban /dev/sda -read 80388 0 32

Log files location: Test-archive/diskchg/dch-04

Log file highlights: Cg-sda-rlog.txt:
diskchg @(#) diskchg,c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-04 mcmillan serban /dev/sda -read 80388 0 32
TEST dch-04 HOST mcmillan OPERATOR serban
Comment: Test the -read function

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial # (3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30
016: 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC CC CC
run start Sun Apr  3 09:59:09 2005
run finish Sun Apr  3 09:59:31 2005
elapsed time 0:0:22
Normal exit

Expected results: Diskchg creates a new log file cg-sda-rlog.txt, whose name reflects the function used (“r”) and the Linux device. Diskchg displays the sector content correctly. It logs all required information.

Actual results: No anomalies detected.

Analysis: Expected results achieved.
## Case Dch-05

| Case summary: | Test the `read` function of `diskchg` on a SCSI hard disk.  
Use:  
-the `read` option with a sector C/H/S address, but with an offset too large;  
-the `new_log` option. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:00:57 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td><code>/dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</code></td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <code>diskchg</code>.</td>
</tr>
<tr>
<td>Log files location:</td>
<td><code>Test-archive/diskchg/dch-05</code></td>
</tr>
<tr>
<td>Log file highlights:</td>
<td><code>Cg-sda-rlog.txt:</code></td>
</tr>
</tbody>
</table>

```plaintext
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32  
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)  
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12  
support lib compiled Mar 25 2005 at 19:16:46  
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24  
cmd: diskchg dch-05 mcmillan serban /dev/sda -new_log -read 5/1/1 640 32  
TEST dch-05 HOST mcmillan OPERATOR serban  
Comment: Test `read`, sector C/H/S, offset too large  

Target disk Drive `/dev/sda`  
04461/254/63 (max cyl/hd values)  
04462/255/63 (number of cyl/hd)  
71687370 total number of sectors  
Non-IDE disk  
Model (ST336705LC) serial #  
(3DE03HL300008110CEHF)  

Offset 640 not valid ([0..511]), reset to 0  
Disk addr lba 80388 C/H/S 5/1/1 offset 0  
000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30  
016: 30 30 30 30 38 30 33 38 38 38 38 00 CC CC CC CC CC  
run start Sun Apr 3 10:00:57 2005  
run finish Sun Apr 3 10:01:31 2005 
```
### Case Dch-06

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test the -read function of diskchg on a SCSI hard disk. Use: -the -read option with a sector C/H/S address, but with a length too large; -the -new_log option.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:05:41 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>/dev/sda. external label &quot;CC&quot;, model ST336705LC. serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run diskchg: diskchg dch-06 mcmillan serban /dev/sda -read 5/1/1 0 1024 -new_log</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskchg/dch-06</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td>Cg-sda-rlog.txt: diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskchg dch-06 mcmillan serban /dev/sda -read 5/1/1 0 1024 -new_log TEST dch-06 HOST mcmillan OPERATOR serban Comment: Test -read. length too large Target disk Drive /dev/sda 04461/254/63 (max cyl/hd values) 04462/255/63 (number of cyl/hd) 71687370 total number of sectors</td>
</tr>
<tr>
<td>Case Dch-07</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td><strong>Case summary:</strong></td>
<td>Test the -read function of <code>diskchg</code> on a SCSI hard disk. Use: -the -read option with a sector C/H/S address, with valid offset and length, but with offset+length too large; -the -new_log option.</td>
</tr>
<tr>
<td><strong>Tester name:</strong></td>
<td>Serban</td>
</tr>
<tr>
<td><strong>Test date:</strong></td>
<td>Sun Apr 3 10:07:15 2005</td>
</tr>
<tr>
<td><strong>PC:</strong></td>
<td>McMillan</td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
<td>/dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
<td>Run <code>diskchg</code>: <code>diskchg dch-07 mcmillan serban /dev/sda -read 5/1/1 256 400 -new_log</code></td>
</tr>
<tr>
<td><strong>Log files location:</strong></td>
<td>Test-archive/diskchg/dch-07</td>
</tr>
</tbody>
</table>
| **Log file highlights:** | Cg-sda-rlog.txt: `diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32`
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
`cmd: diskchg dch-07 mcmillan serban /dev/sda -read 5/1/1 256 400 -new_log` |
new_log
TEST dch-07 HOST mcmillan OPERATOR serban
Comment: Test -read, offset+length too large

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial # (3DE03HL300008110CEHF)

Length (400) goes past end of sector (656); resetting to end of sector
Disk addr lba 80388 C/H/S 5/1/1 offset 256
256: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
272: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
288: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
304: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
320: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
336: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
352: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
368: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
384: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
400: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
416: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
432: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
448: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
464: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
480: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
496: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
run start Sun Apr  3 10:07:15 2005
run finish Sun Apr  3 10:07:30 2005
elapsed time 0:0:15
Normal exit

Expected results: Diskchg creates a new log file cg-sda-rlog.txt.
Diskchg detects the length+offset is too large, and displays the sector
content from the specified offset up to the sector end.
It logs all required information.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

Case Dch-08

Case summary: Test the -read function of diskchg on a SCSI hard disk.
Use:
-the -read option with an invalid sector address:
-the –new_log option.

<table>
<thead>
<tr>
<th>Tester name</th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date</td>
<td>Sun Apr 3 10:08:59 2005</td>
</tr>
<tr>
<td>PC</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks</td>
<td>/dev/sda, external label “CC”, model ST336705LC, serial #3DE03HL3000081110CEHF</td>
</tr>
<tr>
<td>Execute</td>
<td>Run diskchg:</td>
</tr>
</tbody>
</table>

```bash
diskchg dch-08 mcmillan serban /dev/sda -new_log -read 71687370 0 512
```

<table>
<thead>
<tr>
<th>Log files location</th>
<th>Test-archive/diskchg/dch-08</th>
</tr>
</thead>
</table>

Log file highlights:

**Cg-sda-rlog.txt:**

diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-08 mcmillan serban /dev/sda -new_log -read
71687370 0 512
TEST dch-08 HOST mcmillan OPERATOR serban
Comment: Try reading beyond disk range

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial # (3DE03HL3000081110CEHF)

Disk addr lba 71687370 C/H/S 4462/84/49 offset 0
Disk read error 0x01 at sector 4462/84/49
run start Sun Apr 3 10:08:59 2005
run finish Sun Apr 3 10:09:15 2005
elapsed time 0:0:16
Normal exit

Expected results: *Diskchg creates a new log file cg-sda-rlog.txt.*
*Diskchg detects the sector address is too large and issues an error message.*
*It logs all required information.*

Actual results: No anomalies detected.

Analysis: Expected results achieved.
**Case Dch-09**

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test the -fill function of <em>diskchg</em> on a SCSI hard disk. Use: -the -fill option with the automatically detected geometry: -the -new_log option.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:13:21 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>/dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <em>diskchg</em> three times: 1) to read original sector content; 2) to fill the sector as another sector; and 3) to read the modified sector:</td>
</tr>
</tbody>
</table>
|               | diskchg dch-09 mcmillan serban /dev/sda -new_log -read 5/1/1 0 32  
|               | diskchg dch-09 mcmillan serban /dev/sda -new_log -fill 5/1/1 6/1/1 0 BB  
|               | diskchg dch-09 mcmillan serban /dev/sda -read 5/1/1 0 32 |
| Log files location: | Test-archive/diskchg/dch-09                                                             |
| Log file highlights: | **Cg-sda-flog.txt:**                                                                                                             |
|               | diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32  
|               | compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)  
|               | @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46  
|               | @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskchg dch-09 mcmillan serban /dev/sda -new_log -fill 5/1/1 6/1/1 0 BB  
|               | TEST dch-09 HOST mcmillan OPERATOR serban Comment: Fill dst sector as src sector in detected geometry |
|               | Target disk Drive /dev/sda  
|               | 04461/254/63 (max cyl/hd values)  
|               | 04462/255/63 (number of cyl/hd)  
|               | 71687370 total number of sectors  
|               | Non-IDE disk  
|               | Model (ST336705LC ) serial # (3DE03HL300008110CEHF) |
|               | Disk addr lba 80388 C/H/S 5/1/1  
|               | Using 255 heads |
Fill addr lba 96453 C/H/S 6/1/1
Fill sector 5/1/1 OK
run start Sun Apr 3 10:13:21 2005
run finish Sun Apr 3 10:13:47 2005
elapsed time 0:0:26
Normal exit

Cg-sda-rlog.txt:
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: diskchg dch-09 mcmillan serban /dev/sda -new_log -read 5/1/1 0 32
TEST dch-09 HOST mcmillan OPERATOR serban
Comment: Read original dst sector

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000: 30 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30
016: 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC CC CC
run start Sun Apr 3 10:12:42 2005
run finish Sun Apr 3 10:12:52 2005
elapsed time 0:0:10
Normal exit
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-09 mcmillan serban /dev/sda -read 5/1/1 0 32
TEST dch-09 HOST mcmillan OPERATOR serban
Comment: Read modified dst sector
Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000: 30 30 30 30 36 2F 30 30 31 2F 30 31 20 30 30 30
016: 30 30 30 39 36 34 35 33 00 BB BB BB BB BB BB
run start Sun Apr 3 10:14:06 2005
run finish Sun Apr 3 10:14:22 2005
elapsed time 0:0:16
Normal exit

Expected results:  
*Diskchg* creates a new log file cg-sda-flog.txt, whose name reflects the function we test ("f") and the Linux device.  
*Diskchg* fills the specified sector as it would fill the second specified sector in the detected geometry.  
It logs all required information.

Actual results:  No anomalies detected.

Analysis:  Expected results achieved.

---

**Case Dch-10**

**Case summary:**  Test the –fill function of *diskchg* on a SCSI hard disk.  
Use:
- the –fill option with the detected geometry specified explicitly (this is the only difference from Dch-09):
- the –new_log option.

**Tester name:**  Serban

**Test date:**  Sun Apr 3 10:19:40 2005

**PC:**  McMillan

**Disks:**  /dev/sda, external label "CC", model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:**  Run *diskchg* three times: 1) to read original sector content; 2) to fill the sector as another sector; and 3) to read the modified sector:

diskchg dch-10 mcmillan serban /dev/sda -read 5/1/1 0 32
diskchg dch-10 mcmillan serban /dev/sda -new_log -fill 5/1/1 6/1/1 255 AA
diskchg dch-10 mcmillan serban /dev/sda -read 5/1/1 0 32

**Log files location:**  Test-archive/diskchg/dch-10
Log file highlights:

**Cg-sda-flog.txt:**
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-10 mcmillan serban /dev/sda -new_log -fill
5/1/1 6/1/1 255 AA
TEST dch-10 HOST mcmillan OPERATOR serban
Comment: Fill dst sector, new geometry exactly as the old one
(255 heads)

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388  C/H/S 5/1/1

Using 255 heads
Fill addr lba 96453  C/H/S 6/1/1
Fill sector 5/1/1 OK
run start Sun Apr  3 10:19:40 2005
run finish Sun Apr  3 10:20:09 2005
elapsed time 0:0:29
Normal exit

**Cg-sda-rlog.txt:**
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-10 mcmillan serban /dev/sda -read 5/1/1 0 32
TEST dch-10 HOST mcmillan OPERATOR serban
Comment: Read original dst sector
<table>
<thead>
<tr>
<th>Target disk Drive /dev/sda</th>
</tr>
</thead>
<tbody>
<tr>
<td>04461/254/63 (max cyl/hd values)</td>
</tr>
<tr>
<td>04462/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td>71687370 total number of sectors</td>
</tr>
<tr>
<td>Non-IDE disk</td>
</tr>
<tr>
<td>Model (ST336705LC ) serial #</td>
</tr>
<tr>
<td>(3DE03HL300008110CEHF)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disk addr lba 80388 C/H/S 5/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30</td>
</tr>
<tr>
<td>016: 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC CC</td>
</tr>
<tr>
<td>run start Sun Apr 3 10:17:29 2005</td>
</tr>
<tr>
<td>run finish Sun Apr 3 10:17:38 2005</td>
</tr>
<tr>
<td>elapsed time 0:0:9</td>
</tr>
<tr>
<td>Normal exit</td>
</tr>
<tr>
<td>diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05</td>
</tr>
<tr>
<td>compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3.3</td>
</tr>
<tr>
<td>20040412 (Red Hat Linux 3.3.3-7)</td>
</tr>
<tr>
<td>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:00:12</td>
</tr>
<tr>
<td>support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24</td>
</tr>
<tr>
<td>cmd: diskchg dch-10 mcmillan serban /dev/sda -read 5/1/1 0 32</td>
</tr>
<tr>
<td>TEST dch-10 HOST mcmillan OPERATOR serban</td>
</tr>
<tr>
<td>Comment: Read modified sector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target disk Drive /dev/sda</th>
</tr>
</thead>
<tbody>
<tr>
<td>04461/254/63 (max cyl/hd values)</td>
</tr>
<tr>
<td>04462/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td>71687370 total number of sectors</td>
</tr>
<tr>
<td>Non-IDE disk</td>
</tr>
<tr>
<td>Model (ST336705LC ) serial #</td>
</tr>
<tr>
<td>(3DE03HL300008110CEHF)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disk addr lba 80388 C/H/S 5/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 30 36 2F 30 30 31 2F 30 31 20 30 30 30</td>
</tr>
<tr>
<td>016: 30 30 30 30 39 36 34 35 33 00 AA AA AA AA AA AA AA AA</td>
</tr>
<tr>
<td>run start Sun Apr 3 10:20:22 2005</td>
</tr>
<tr>
<td>run finish Sun Apr 3 10:20:36 2005</td>
</tr>
<tr>
<td>elapsed time 0:0:14</td>
</tr>
<tr>
<td>Normal exit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected results:</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Diskchg</em> creates a new log file cg-sda-flog.txt, whose name</td>
</tr>
<tr>
<td>reflects the tested function (&quot;f&quot;) and the Linux device.</td>
</tr>
<tr>
<td><em>Diskchg</em> fills the specified sector as it would fill the</td>
</tr>
<tr>
<td>second specified sector in the specified geometry.</td>
</tr>
<tr>
<td>Actual results:</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Analysis:</td>
</tr>
</tbody>
</table>

**Case Dch-11**

**Case summary:** Test the -fill function of `diskchg` on a SCSI hard disk.
Use:
- the -fill option with a geometry different from the one detected;
- the -new_log option.

**Tester name:** Serban
**Test date:** Sun Apr 3 10:26:04 2005
**PC:** McMillan
**Disks:** /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL30000811OCEHF.

**Execute:** Run `diskchg` three times: 1) to read original sector content; 2) to fill the sector as another sector in the new geometry; and 3) to read the modified sector:

```
diskchg dch-11 mcmillan serban /dev/sda -read 5/1/1 0 32
diskchg dch-11 mcmillan serban /dev/sda -new_log -fill 5/1/1 6/1/1 200 DD
diskchg dch-11 mcmillan serban /dev/sda -read 5/1/1 0 32
```

**Log files location:** Test-archive/diskchg/dch-11

**Log file highlights:**

Cg-sda-flog.txt:
- diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
  compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
  20040412 (Red Hat Linux 3.3.3-7)
- @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
  support lib compiled Mar 25 2005 at 19:16:46
- @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
  cmd: diskchg dch-11 mcmillan serban /dev/sda -new_log -fill 5/1/1 6/1/1 200 DD
  TEST dch-11 HOST mcmillan OPERATOR serban
  Comment: Fill dst sector as src sector in a new geometry (200 heads)

- Target disk Drive /dev/sda
- 04461/254/63 (max cyl/ld values)
- 04462/255/63 (number of cyl/ld)
- 71687370 total number of sectors
- Non-IDE disk
- Model (ST336705LC ) serial #
<table>
<thead>
<tr>
<th>Disk addr lba 80388  C/H/S 5/1/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using 200 heads</td>
</tr>
<tr>
<td>Fill addr lba 75663  C/H/S 6/1/1</td>
</tr>
<tr>
<td>Fill sector 5/1/1 OK</td>
</tr>
<tr>
<td>run start Sun Apr  3 10:26:04 2005</td>
</tr>
<tr>
<td>run finish Sun Apr  3 10:26:22 2005</td>
</tr>
<tr>
<td>elapsed time 0:0:18</td>
</tr>
<tr>
<td>Normal exit</td>
</tr>
</tbody>
</table>

**Cg-sda-rlog.txt:**

diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-11 mcmillan serban /dev/sda -read 5/1/1 0 32
TEST dch-11 HOST mcmillan OPERATOR serban
Comment: Read original dst sector

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705FC ) serial #
(3DE03HL300008110CEHF)

<table>
<thead>
<tr>
<th>Disk addr lba 80388  C/H/S 5/1/1 offset 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30</td>
</tr>
<tr>
<td>016: 30 30 30 38 30 33 38 38 00 CC CC CC CC CC</td>
</tr>
<tr>
<td>run start Sun Apr  3 10:25:32 2005</td>
</tr>
<tr>
<td>run finish Sun Apr  3 10:25:40 2005</td>
</tr>
<tr>
<td>elapsed time 0:0:8</td>
</tr>
<tr>
<td>Normal exit</td>
</tr>
</tbody>
</table>

diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#)zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-11 mcmillan serban /dev/sda -read 5/1/1 0 32
TEST dch-11 HOST mcmillan OPERATOR serban
Comment: Read modified dst sector

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000: 30 30 30 30 36 2F 30 30 31 2F 30 31 20 30 30 30
016: 30 30 30 30 37 35 36 33 00 DD DD DD DD DD DD DD
run start Sun Apr 3 10:26:43 2005
run finish Sun Apr 3 10:26:58 2005
elapsed time 0:0:15
Normal exit

Expected results: Diskchg creates a new log file cg-sda-flog.txt, whose name reflects the tested function ("f") and the Linux device. Diskchg fills the specified sector as it would fill the second specified sector in the specified geometry. It logs all required information.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Dch-12
Case summary: Test the -write function of diskchg on a SCSI hard disk with the sector address specified in LBA format. Use:
-the -write option to modify a byte at a specified offset in a sector specified by its LBA address;
-the -new_log option.

Tester name: Serban
Test date: Sun Apr 3 10:33:51 2005
PC: McMillan
Disks: /dev/sda, external label "CC", model ST336705LC, serial # 3DE03HL300008110CEHF.
Execute: Run diskchg three times: 1) to read original sector content; 2) to fill the sector as another sector in the new geometry; and 3)
to read the modified sector:

```bash
diskchg dch-12 mcmillan serban /dev/sda -new_log -read 80388 0 32
diskchg dch-12 mcmillan serban /dev/sda -new_log -write 80388 26 CE
diskchg dch-12 mcmillan serban /dev/sda -read 80388 0 32
```

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/diskchg/dch-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td><strong>Cg-sda-wlog.txt:</strong></td>
</tr>
<tr>
<td></td>
<td>diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32</td>
</tr>
<tr>
<td></td>
<td>compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12</td>
</tr>
<tr>
<td></td>
<td>support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24</td>
</tr>
<tr>
<td></td>
<td>cmd: diskchg dch-12 mcmillan serban /dev/sda -new_log -write 80388 26 CE</td>
</tr>
<tr>
<td></td>
<td>TEST dch-12 HOST mcmillan OPERATOR serban</td>
</tr>
<tr>
<td></td>
<td>Comment: Change one byte</td>
</tr>
</tbody>
</table>

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 26
Update sector, old value 0xCC, new value 0xCE
run start Sun Apr  3 10:33:51 2005
run finish Sun Apr  3 10:34:01 2005
elapsed time 0:0:10
Normal exit

**Cg-sda-rlog.txt:**

```bash
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 |
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) |
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 |
support lib compiled Mar 25 2005 at 19:16:46 |
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 |
cmd: diskchg dch-12 mcmillan serban /dev/sda -new_log -write 80388 0 32
```
TEST dch-12 HOST mcmillan OPERATOR serban
Comment: Read original sector

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30
016: 30 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC CC
run start Sun Apr 3 10:33:19 2005
run finish Sun Apr 3 10:33:26 2005
elapsed time 0:0:7
Normal exit
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05
at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-12 mcmillan serban /dev/sda -read 80388 0 32
TEST dch-12 HOST mcmillan OPERATOR serban
Comment: Read modified sector

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000: 30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30
016: 30 30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC CC
run start Sun Apr 3 10:34:12 2005
run finish Sun Apr 3 10:34:18 2005
elapsed time 0:0:6
Normal exit
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05
at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-12 mcmillan serban /dev/sda -read 80388 0 32

Expected results: Diskchg creates a new log file cg-sda-wlog.txt, whose name
reflects the tested function ("w") and the Linux device. Diskchg modifies the byte at the specified offset in the specified sector. All other bytes remain unchanged. It logs all required information.

<table>
<thead>
<tr>
<th>Actual results:</th>
<th>No anomalies detected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

### Case Dch-13

**Case summary:** Test the -write function of diskchg on a SCSI hard disk, with the sector address specified in the C/H/S format.

**Use:**
- the -write option to modify a byte at a specified offset in a sector specified by its C/H/S address;
- the -new_log option.

<table>
<thead>
<tr>
<th>Tester name:</th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:38:31 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>/dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
</tbody>
</table>

**Execute:** Run diskchg three times: 1) to read original sector content; 2) to fill the sector as another sector in the new geometry; and 3) to read the modified sector:

```
diskchg dch-13 mcmillan serban /dev/sda -new_log -read 5/1/1 0 32
diskchg dch-13 mcmillan serban /dev/sda -new_log -write 5/1/1 26 CE
diskchg dch-13 mcmillan serban /dev/sda -read 5/1/1 0 32
```

**Log files location:** Test-archive/diskchg/dch-13

**Log file highlights:**

**Cg-sda-wlog.txt:**

```
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32  
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3  
20040412 (Red Hat Linux 3.3.3-7)  
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12  
support lib compiled Mar 25 2005 at 19:16:46  
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24  
cmd: diskchg dch-13 mcmillan serban /dev/sda -new_log -write 5/1/1 26 CE  
TEST dch-13 HOST mcmillan OPERATOR serban  
Comment: Modify one byte, C/H/S  
Target disk Drive /dev/sda  
04461/254/63 (max cyl/hd values)
```
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 26
Update sector, old value 0xCC, new value 0xCE
run start Sun Apr  3 10:38:31 2005
run finish Sun Apr  3 10:38:40 2005
elapsed time 0:0:9
Normal exit

Cg-sda-rlog.txt:
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05
at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-13 mcmillan serban /dev/sda -new_log -read 5/1/1 0 32
TEST dch-13 HOST mcmillan OPERATOR serban
Comment: Read original sector, C/H/S

Target disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Disk addr lba 80388 C/H/S 5/1/1 offset 0
000:  30 30 30 30 35 2F 30 30 31 2F 30 31 20 30 30 30
016:  30 30 30 30 38 30 33 38 38 00 CC CC CC CC CC CC
run start Sun Apr  3 10:38:05 2005
run finish Sun Apr  3 10:38:15 2005
elapsed time 0:0:10
Normal exit
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05
at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
Case Dch-14

Case summary: Test the -write function of diskchg on a SCSI hard disk, with the sector address specified in the C/H/S format and an invalid offset. Use:
-the -write option to modify a byte at an invalid offset in a sector specified by its C/H/S address;
-the -new_log option.

<p>| Tester name: | Serban |
| Test date: | Sun Apr 3 10:41:00 2005 |
| PC: | McMillan |
| Disks: | /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| Execute: | Run diskchg. |</p>
<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/diskchg/dch-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td><strong>Cg-sda-wlog.txt:</strong> diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskchg dch-14 mcmillan serban /dev/sda -new_log -write 5/1/1 640 CF TEST dch-14 HOST mcmillan OPERATOR serban Comment: Try to write at offset too large</td>
</tr>
<tr>
<td>Target disk Drive: /dev/sda 04461/254/63 (max cyl/hd values) 04462/255/63 (number of cyl/hd) 71687370 total number of sectors Non-IDE disk Model (ST336705LC ) serial # (3DE03HL30008110CEHF) Offset 640 not valid ([0..511])</td>
<td></td>
</tr>
<tr>
<td>Expected results:</td>
<td>Diskchg creates a new log file cg-sda-wlog.txt, whose name reflects the tested function (&quot;w&quot;) and the Linux device. Diskchg detects the invalid offset and rejects the request with an error message.</td>
</tr>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

**Case Dch-15**

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test the –write function of diskchg on a SCSI hard disk, with the sector address outside the disk range. Use: -the –write option with a byte address beyond the disk end; -the –new_log option.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:42:18 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>/dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL30008110CEHF.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <em>diskchg</em>:</td>
</tr>
<tr>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>diskchg dch-15 mcmillan serban /dev/sda -new_log -write 71687370 26 DD</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskchg/dch-15</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td>Cg-sda-wlog.txt:</td>
</tr>
</tbody>
</table>
|                     | diskchg @(#)
|                     | diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 |
|                     | compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) |
|                     | @(#) zbios.c Linux Version 1.1 Created 02/10/05 at 10:53:24 |
|                     | support lib compiled Mar 25 2005 at 19:16:46 |
|                     | @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 |
|                     | cmd: diskchg dch-15 mcmillan serban /dev/sda -new_log -write 71687370 26 DD |
|                     | TEST dch-15 HOST mcmillan OPERATOR serban |
|                     | Comment: Try to write to a sector outside range |
| Target disk Drive | /dev/sda |
| Drive           | 04461/254/63 (max cyl/hd values) |
| Non-IDE disk    | 04462/255/63 (number of cyl/hd) |
|                  | 71687370 total number of sectors |
| Model (ST336705LC ) serial # | (3DE03HL300008110CEHF) |
| Disk addr lba   | 71687370 C/H/S 4462/84/49 offset 26 |
| read for update | failed |
| run start       | Sun Apr 3 10:42:18 2005 |
| run finish      | Sun Apr 3 10:42:32 2005 |
| elapsed time    | 0:0:14 |
| Normal exit     | Expected results: |
|                 | *Diskchg* creates a new log file cg-sda-wlog.txt, whose name reflects the tested function ("w") and the Linux device. |
|                 | *Diskchg* detects the invalid sector address and issues an error message. |
|                 | Actual results: |
|                 | No anomalies detected. |
|                 | Analysis: |
|                 | Expected results achieved. |

**Case Dch-16**

**Case summary:** Test the `-zero` function of *diskchg* on a IDE hard disk, with the first sector address specified in the LBA format.

Use:
- the `-zero` option with a byte address of 0 (first sector).
<table>
<thead>
<tr>
<th>Tester name:</th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:47:15 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>/dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <code>diskchg</code></td>
</tr>
<tr>
<td></td>
<td><code>diskchg dch-16 mcmillan serban /dev/hdb -zero 0</code></td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskchg/dch-16</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td><strong>Cg-hdb-zlog.txt:</strong></td>
</tr>
<tr>
<td></td>
<td><code>diskchg #@(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32</code></td>
</tr>
<tr>
<td></td>
<td>compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)`</td>
</tr>
<tr>
<td></td>
<td><code>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46</code></td>
</tr>
<tr>
<td></td>
<td><code>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24</code></td>
</tr>
<tr>
<td></td>
<td><code>cmd: diskchg dch-16 mcmillan serban /dev/hdb -zero 0</code></td>
</tr>
<tr>
<td></td>
<td><code>TEST dch-16 HOST mcmillan OPERATOR serban</code></td>
</tr>
<tr>
<td></td>
<td><code>Comment: Zero first sector</code></td>
</tr>
<tr>
<td></td>
<td><code>Target disk Drive /dev/hdb</code></td>
</tr>
<tr>
<td></td>
<td><code>04865/254/63 (max cyl/hd values)</code></td>
</tr>
<tr>
<td></td>
<td><code>04866/255/63 (number of cyl/hd)</code></td>
</tr>
<tr>
<td></td>
<td><code>78177792 total number of sectors</code></td>
</tr>
<tr>
<td></td>
<td><code>IDE disk: Model (MAXTOR 6L040J2) serial #</code></td>
</tr>
<tr>
<td></td>
<td><code>(662201137770)</code></td>
</tr>
<tr>
<td></td>
<td><code>Disk addr lba 0 C/H/S 0/0/1</code></td>
</tr>
<tr>
<td></td>
<td><code>Zero sector 0 OK</code></td>
</tr>
<tr>
<td></td>
<td><code>run start Sun Apr 3 10:47:15 2005</code></td>
</tr>
<tr>
<td></td>
<td><code>run finish Sun Apr 3 10:47:22 2005</code></td>
</tr>
<tr>
<td></td>
<td><code>elapsed time 0:0:7</code></td>
</tr>
<tr>
<td></td>
<td><code>Normal exit</code></td>
</tr>
<tr>
<td>Expected results:</td>
<td><code>Diskchg</code> creates a new log file cg-hdb-zlog.txt, whose name reflects the tested function (“z”) and the Linux device <code>/dev/hdb</code>.</td>
</tr>
<tr>
<td></td>
<td><code>Diskchg</code> zeroes the first sector of the disk. It logs all the required information correctly.</td>
</tr>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
## Case Dch-17

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test the –zero function of diskchg on an IDE hard disk, with the last sector address specified in the C/H/S format, and an alternate log file name specified by using the –log_name option.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Sun Apr 3 10:52:19 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>/dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run diskchg:</td>
</tr>
<tr>
<td></td>
<td>diskchg dch-17 mcmillan serban /dev/hdb -new_log -log_name zerolog.txt -zero 4866/87/21</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskchg/dch-17</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td>zerolog.txt:</td>
</tr>
<tr>
<td></td>
<td>diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskchg dch-17 mcmillan serban /dev/hdb -new_log -log_name zerolog.txt -zero 4866/87/21</td>
</tr>
<tr>
<td></td>
<td>TEST dch-17 HOST mcmillan OPERATOR serban</td>
</tr>
<tr>
<td></td>
<td>Comment: Zero last sector. C/H/S, alternate log file name</td>
</tr>
<tr>
<td></td>
<td>Target disk Drive /dev/hdb</td>
</tr>
<tr>
<td></td>
<td>04865/254/63 (max cyl/hd values)</td>
</tr>
<tr>
<td></td>
<td>04866/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td></td>
<td>78177792 total number of sectors</td>
</tr>
<tr>
<td></td>
<td>IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)</td>
</tr>
<tr>
<td></td>
<td>Disk addr lba 78177791 C/H/S 4866/87/21</td>
</tr>
<tr>
<td></td>
<td>Zero sector 4866/87/21 OK</td>
</tr>
<tr>
<td></td>
<td>run start Sun Apr 3 10:52:19 2005</td>
</tr>
<tr>
<td></td>
<td>run finish Sun Apr 3 10:52:44 2005</td>
</tr>
<tr>
<td></td>
<td>elapsed time 0:0:25</td>
</tr>
<tr>
<td></td>
<td>Normal exit</td>
</tr>
<tr>
<td>Expected results:</td>
<td>Diskchg creates a new log file zerolog.txt, as specified in the –log_name option.</td>
</tr>
</tbody>
</table>
Diskchg zeroes the last sector of the disk. It logs all the required information correctly.

<table>
<thead>
<tr>
<th>Actual results:</th>
<th>No anomalies detected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

### Case Dch-18

**Case summary:** Test the `-zero` function of `diskchg` on an IDE hard disk, with an arbitrary sector address specified in the LBA format, the same alternate log file name specified in the previous case by using the `-log_name` option, and the `-new_log` option.

**Tester name:** Serban

**Test date:** Sun Apr 3 10:58:42 2005

**PC:** McMillan

**Disks:** /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

**Execute:** Run `diskchg`:

```
diskchg dch-18 mcmillan serban /dev/hdb -new_log -log_name zerolog.txt -zero 80388
```

**Log files location:** Test-archive/diskchg/dch-18

**Log file highlights:**

```
zerolog.txt:
diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-18 mcmillan serban /dev/hdb -new_log -log_name zerolog.txt -zero 80388
TEST dch-18 HOST mcmillan OPERATOR serban
Comment: Zero sector, create new alternate log file even if it exists

Target disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)

Disk addr lba 80388 C/H/S 5/1/1
Zero sector 80388 OK
```
<table>
<thead>
<tr>
<th>Time stamp</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>run start Sun Apr 3 10:58:42 2005</td>
<td>run finish Sun Apr 3 10:59:20 2005 elapsed time 0:0:38 Normal exit</td>
</tr>
</tbody>
</table>

**Expected results:**
*Diskchg* creates a new log file *zerolog.txt*, although a log file with the same name already exists.
*Diskchg* zeroes the specified sector of the disk. It logs all the required information correctly.

**Actual results:**
No anomalies detected.

**Analysis:**
Expected results achieved.

---

### Case Dch-19

**Case summary:** Test the -zero function of *diskchg* on an IDE hard disk, with an invalid LBA sector address.

**Tester name:** Serban

**Test date:** Sun Apr 3 11:03:35 2005

**PC:** McMillan

**Disks:**
/dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

**Execute:**
Run *diskchg*:

```bash
diskchg dch-19 mcmillan serban /dev/hdb -new_log -zero 78177792
```

**Log files location:** Test-archive/diskchg/dch-19

**Log file highlights:**

- **Cg-hdb-zlog.txt:**
  - `diskchg @(*) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32`
  - `compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)`
  - `@(*) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12`
  - `support lib compiled Mar 25 2005 at 19:16:46`
  - `@(*) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24`
  - `cmd: diskchg dch-19 mcmillan serban /dev/hdb -new_log -zero 78177792`
  - `TEST dch-19 HOST mcmillan OPERATOR serban`
  - `Comment: Try to zero a sector outside range`

- Target disk Drive /dev/hdb
  - 04865/254/63 (max cyl/hd values)
  - 04866/255/63 (number of cyl/hd)
  - 78177792 total number of sectors

- IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)
Zero 78177792 failed
run start Sun Apr  3 11:03:35 2005
run finish Sun Apr  3 11:03:44 2005
elapsed time 0:0:9
Normal exit

Expected results: Diskchg creates a new log file cg-hdb-zlog.txt that reflects the function we test and the Linux device /dev/hdb. It detects the invalid sector address and issues an error message. It logs all the required information correctly.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Dch-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary:</td>
</tr>
<tr>
<td>Tester name:</td>
</tr>
<tr>
<td>Test date:</td>
</tr>
<tr>
<td>PC:</td>
</tr>
<tr>
<td>Execute:</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Log files location:</td>
</tr>
<tr>
<td>Log file highlights:</td>
</tr>
</tbody>
</table>

**diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32**
compilation on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskchg dch-20 frank serban /dev/sdb -read 0 0 32
TEST dch-20 HOST frank OPERATOR serban
Comment: Read sector 0 of SATA disk

Target disk Drive /dev/sdb
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-WMAEH2677545)

Disk addr lba 0 C/H/S 0/0/1 offset 0
000: 30 30 30 30 30 2F 30 30 30 2F 30 31 20 30 30 30
016: 30 30 30 30 30 30 30 30 00 AA AA AA AA AA AA AA
run start Tue Mar 29 14:33:35 2005
run finish Tue Mar 29 14:33:48 2005
elapsed time 0:0:13
Normal exit

diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05
at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: diskchg dch-20 frank serban /dev/sdb -read 488397167 0 32
TEST dch-20 HOST frank OPERATOR serban
Comment: Read last sector of SATA disk

Target disk Drive /dev/sdb
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-WMAEH2677545)

Disk addr lba 488397167 C/H/S 30401/80/63 offset 0
000: 33 30 34 30 31 2F 30 38 30 2F 36 33 20 30 30 30
016: 34 38 38 33 39 37 31 36 37 00 AA AA AA AA AA AA AA
run start Tue Mar 29 14:34:12 2005
run finish Tue Mar 29 14:34:22 2005
elapsed time 0:0:10
Normal exit

diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05
at 17:24:32
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12

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support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24

cmd: diskchg dch-20 frank serban /dev/sdb -read 488397168 0 32
TEST dch-20 HOST frank OPERATOR serban
Comment: Read sector beyond disk range

Target disk Drive /dev/sdb
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-WMAEH2677545)

Disk addr lba 488397168 C/H/S 30401/81/1 offset 0
Disk read error 0x01 at sector 30401/81/1
run start Tue Mar 29 14:35:40 2005
run finish Tue Mar 29 14:35:50 2005
elapsed time 0:0:10
Normal exit

Expected results: Diskchg creates a new log file cg-sdb-rlog.txt that reflects the function we test and the Linux device /dev/sdb corresponding to the SATA disk. It reads and displays correctly the first and the last sectors of the disk, detects the invalid sector address in the third command, and issues an error message. It logs all the required information correctly.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

**Case Dch-21**

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test the –write function of diskchg on a SATA hard disk drive of large capacity, for the first sector and last sector.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Tue Mar 29 14:38:42 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>Frank</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <strong>diskchg</strong> twice: to modify a byte of the first sector, then the last sector:</td>
</tr>
<tr>
<td></td>
<td>diskchg dch-21 frank serban /dev/sdb -write 0 30 BB</td>
</tr>
<tr>
<td></td>
<td>diskchg dch-21 frank serban /dev/sdb -write 488397167 30 BB</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskchg/dch-21</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td><strong>Cg-sdb-wlog.txt:</strong> diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskchg dch-21 franksen /dev/sdb -write 0 30 BB TEST dch-21 HOST franksen OPERATOR serban Comment: Write sector 0 of SATA disk</td>
</tr>
</tbody>
</table>

Target disk Drive /dev/sdb
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-WMAEH2677545)

Disk addr lba 0 C/H/S 0/0/1 offset 30
Update sector, old value 0xAA, new value 0xBB
run start Tue Mar 29 14:38:42 2005
run finish Tue Mar 29 14:38:51 2005
elapsed time 0:0:9
Normal exit

diskchg @(#) diskchg.c Linux Version 1.5 Created 03/15/05 at 17:24:32 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskchg dch-21 franksen /dev/sdb -write 488397167 30 BB TEST dch-21 HOST franksen OPERATOR serban Comment: Write last sector of SATA disk |

Target disk Drive /dev/sdb
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-
<table>
<thead>
<tr>
<th>Case Dch-22</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong> Test whether <code>diskchg</code> displays its usage mode when using the <code>-h</code> option or incorrect arguments.</td>
</tr>
<tr>
<td><strong>Tester name:</strong> Serban</td>
</tr>
<tr>
<td><strong>Test date:</strong> Tue Mar 29 14:38:42 2005</td>
</tr>
<tr>
<td><strong>PC:</strong> McMillan.</td>
</tr>
<tr>
<td><strong>Disks:</strong> None.</td>
</tr>
<tr>
<td><strong>Execute:</strong> Run <code>diskchg</code> four times: with no arguments, with incorrect arguments, with the <code>-h</code> option alone on the command line, and with correct arguments plus the <code>-h</code> option. Capture the standard output in each case into a file:</td>
</tr>
<tr>
<td>diskchg &gt; output.txt</td>
</tr>
<tr>
<td>diskchg dch-22 mcmillan serban -read -logname&gt;&gt; output.txt</td>
</tr>
<tr>
<td>diskchg -h &gt; output.txt</td>
</tr>
<tr>
<td>diskchg dch-22 mcmillan serban /dev/sda -read 123456 0 32 -h &gt;&gt; output.txt</td>
</tr>
<tr>
<td><strong>Log files location:</strong> Test-archive/diskchg/dch-22</td>
</tr>
<tr>
<td><strong>Log file highlights:</strong> Output.txt:</td>
</tr>
<tr>
<td>diskchg compiled at 19:16:47 on Mar 25 2005</td>
</tr>
<tr>
<td>diskchg: select exactly one of: -read, -write, -zero, -fill or -exam</td>
</tr>
<tr>
<td>Usage: diskchg test-case host operator drive [-options]</td>
</tr>
<tr>
<td>-comment &quot;...&quot; Give comment on command line</td>
</tr>
<tr>
<td>-exam Prompt for sectors to print</td>
</tr>
<tr>
<td>-read addr offset length Print &lt;length&gt; bytes starting at</td>
</tr>
<tr>
<td>Command</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>-write &lt;offset&gt; &lt;addr&gt; &lt;new_value&gt;</td>
</tr>
<tr>
<td>-fill &lt;fill_addr&gt; &lt;fill_addr&gt; &lt;heads&gt; &lt;new_value&gt;</td>
</tr>
<tr>
<td>-zero &lt;addr&gt;</td>
</tr>
<tr>
<td>-new_log</td>
</tr>
<tr>
<td>-log_name &lt;name&gt;</td>
</tr>
<tr>
<td>-h</td>
</tr>
</tbody>
</table>

Expected results: Diskchg displays its usage mode in each case.
Actual results: No anomalies detected.
Analysis: Expected results achieved.
### 3.2.4 Seccmp Test Results Summary

<table>
<thead>
<tr>
<th>Case Scm-01</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong> Compare first sectors of each disk (source SCSI, destination IDE) having known contents, but neither diskwipe-filled nor zero-filled. Use: -the –sector option; -the –comment option with one-word comment.</td>
</tr>
<tr>
<td><strong>Tester name:</strong> Serban</td>
</tr>
<tr>
<td><strong>Test date:</strong> Mon Apr 4 17:14:49 2005</td>
</tr>
<tr>
<td><strong>PC:</strong> McMillan</td>
</tr>
<tr>
<td><strong>Disks:</strong> Source: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL.30008110CEHF.</td>
</tr>
<tr>
<td>Dest: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.</td>
</tr>
</tbody>
</table>
| **Execute:** Fill first sectors diskwipe-style, then change one byte in each, using `diskchg`:

```
diskchg scm-01 mcmillan serban /dev/sda -fill 0 0 0 CC
diskchg scm-01 mcmillan serban /dev/sda -write 0 30 01
diskchg scm-01 mcmillan serban /dev/hdb -fill 0 0 0 7F
diskchg scm-01 mcmillan serban /dev/hdb -write 0 30 01
```

Run `seccmp`:
```
seccmp scm-01 mcmillan serban /dev/sda CC /dev/hdb 7F -sector 0 0 -comment CompareNonFilledSectors
```

| Log files location: Test-archive/seccmp/scm-01/ |
| Log file highlights: **Seclog.txt:** seccmp @(#) seccmp.c Linux Version 1.3 Created 03/18/05 at 14:39:56 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: seccmp scm-01 mcmillan serban /dev/sda CC /dev/hdb 7F -sector 0 0 -comment CompareNonFilledSectors TEST scm-01 HOST mcmillan OPERATOR serban Comment: CompareNonFilledSectors Source disk Drive /dev/sda 04461/254/63 (max cyl/hd values) 04462/255/63 (number of cyl/hd) 71687370 total number of sectors |
Non-IDE disk
Model (ST336705LC  ) serial #
(3DE03HL300008110CEHF)
Destination disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)

Compare sectors at: Src 0 (0+0) Dst 0 (0+0)
Src  16: 30 30 30 30 30 30 30 30 30 30 00 CC CC CC CC 01 CC
diff :                          ****  ****
Dst 16: 30 30 30 30 30 30 30 30 30 30 00 7F 7F 7F 01 7F
---------------------------------------------------------

Src 496: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
diff :** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
Dst 496: 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F
485 bytes different

run start Mon Apr  4 17:14:49 2005
run finish Mon Apr  4 17:14:49 2005
elapsed time 0:0:0
Normal exit

Expected results:  
Seccmp creates a new log file “seclog.txt”. It compares the
sectors specified in the –sector option and displays the
differences.
It logs all the required information correctly.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Scm-02

Case summary:  
Compare last sectors of each disk (source SCSI, destination
IDE) that are diskwipe-filled. Use:
-the –sector option;
-the –comment option with a multi-word comment;
-the previous log file to append the log records.

Tester name: Serban
Test date: Mon Apr  4 17:21:54 2005
PC: McMillan
Disks: Source: SCSI, /dev/sda, external label “CC”, model
<table>
<thead>
<tr>
<th>ST336705LC, serial # 3DE03HL300008110CEHF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dest: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.</td>
</tr>
</tbody>
</table>

**Execute:** Fill last sectors of each disk diskwipe-style using diskchg:

```
diskchg scm-02 mcmillan serban /dev/sda -new_log -fill 71687369 71687369 0 CC
diskchg scm-02 mcmillan serban /dev/hdb -new_log -fill 78177791 78177791 0 7F
```

**Run seccmp:**

```
seccmp scm-02 mcmillan serban /dev/sda CC /dev/hdb 7F -sector 71687369 78177791 -comment "Compare diskwipe-filled sector, append log"
```

**Log files location:** Test-archive/seccmp/scm-02/

**Log file highlights:**

- `Seclog.txt:`
  
  ```
  -----Log of the previous test case, followed by-----

  seccmp @(#) seccmp.c Linux Version 1.3 Created 03/18/05 at 14:39:56
  compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
  @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
  support lib compiled Mar 25 2005 at 19:16:46
  @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
  cmd: seccmp scm-02 mcmillan serban /dev/sda CC /dev/hdb 7F -sector 71687369 78177791 -comment Compare diskwipe-filled sectors, append log
  TEST scm-02 HOST mcmillan OPERATOR serban
  Comment: Compare diskwipe-filled sectors, append log
  Source disk Drive /dev/sda
  04461/254/63 (max cyl/hd values)
  04462/255/63 (number of cyl/hd)
  71687370 total number of sectors
  Non-IDE disk
  Model (ST336705LC ) serial # (3DE03HL300008110CEHF)
  Destination disk Drive /dev/hdb
  04865/254/63 (max cyl/hd values)
  04866/255/63 (number of cyl/hd)
  78177792 total number of sectors
  IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)

  Compare sectors at: Src 71687369 (71687369+0) Dst
  ```
```
78177791 (78177791+0)
Src filled by CC from 04462/084/48 000071687369
Dst filled by 7F from 04866/087/21 000078177791
497 bytes different

run start Mon Apr 4 17:21:54 2005
run finish Mon Apr 4 17:21:54 2005
elapsed time 0:0:0
Normal exit

Expected results: Seccmp appends the log records to the log file “seclog.txt”
created in the previous test case. It detects the sectors are
diskwipe-style filled, compares them, and displays the number
of different bytes.
It logs all the required information correctly.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

### Case Scm-03

**Case summary:** Try to compare sectors outside the range of the disk. Use:
- the -sector option specifying sector addresses beyond the
  disks’ end;
- interactive comment;
- the -new_log option in order to create a new log file
  although a log file with the same name already exists.

**Tester name:** Serban
**Test date:** Mon Apr 4 17:26:26 2005
**PC:** McMillan
**Disks:**
Source: SCSI, /dev/sda, external label “CC”, model
ST336705LC, serial # 3DE03HL300008110CEHF.
Dest: IDE, /dev/hdb, external label “7F”, model MAXTOR
6L040J2, serial # 662201137770.

**Execute:** Run seccmp:
seccmp scm-03 mcmillan serban /dev/sda CC /dev/hdb 7F
-sector 71687600 78177900 -new_log

**Log files location:** Test-archive/seccmp/scm-03

**Log file highlights:**
seccmp @(#) seccmp.c Linux Version 1.3 Created 03/18/05 at
14:39:56
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
| cmd: seccmp scm-03 mcmillan serban /dev/sda CC /dev/hdb |
| 7F -sector 71687600 78177900 -new_log |
| TEST scm-03 HOST mcmillan OPERATOR serban |
| Comment: Try compare sectors outside range |

Source disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial # |
(3DE03HL300008110CEHF)
Destination disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial # |
(662201137770)
Src Read error 0xFFFFFFFF at LBA 71687600
Dst Read error 0xFFFFFFFF at LBA 78177900
run start Mon Apr  4 17:26:26 2005
run finish Mon Apr  4 17:26:38 2005
elapsed time 0:0:12
Normal exit

Expected results: Seccmp creates a new log file “seclog.txt” although a log file with the same name already exists. It detects the invalid addresses and issues some error message.
It logs all the required information correctly.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

| Case Scm-04 |
| Case summary: Compare different combinations of diskwipe-style filled sectors (same or different fill value, same or different headers - i.e., LBA and C/H/S), when the fill values specified on the command line are identical. Use: |
- interactive specification of sector addresses;
- interactive comment;
- the -new_log option,
- same fill value for both drives on the command line. |
| Tester name: Serban |
| Test date: Mon Apr  4 17:38:20 2005 |
| PC: McMillan |
| Disks: Source: SCSI, /dev/sda, external label “CC”, model |
ST336705LC, serial # 3DE03HL300008110CEHF.

Dest: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

### Execute:

Use `diskchg` to fill sectors:
- `diskchg scm-04 mcmillan serban /dev/sda -fill 1000 1000 0` CC
- `diskchg scm-04 mcmillan serban /dev/sda -fill 1001 1001 0` CD
- `diskchg scm-04 mcmillan serban /dev/hdb -fill 1000 1000 0` CC
- `diskchg scm-04 mcmillan serban /dev/hdb -fill 1001 1001 0` CD
- `diskchg scm-04 mcmillan serban /dev/hdb -fill 1002 1002 0` CE
- `diskchg scm-04 mcmillan serban /dev/hdb -fill 2000 2000 0` CC
- `diskchg scm-04 mcmillan serban /dev/hdb -fill 2001 2001 0` CD

Run `seccmp`:
- `seccmp scm-04 mcmillan serban /dev/sda CC /dev/hdb CC -new_log`

and submit the following sector pairs when prompted:
- 1000 1000
- 1000 1001
- 1001 1000
- 1001 1002
- 1001 1001
- 1000 2000
- 1001 2001

### Log files location:
Test-archive/seccmp/scm-04

### Log file highlights:

**Seclog.txt:**
- seccmp @(#) seccmp.c Linux Version 1.3 Created 03/18/05 at 14:39:56
- compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
- @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
- support lib compiled Mar 25 2005 at 19:16:46
- @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
- cmd: seccmp scm-04 mcmillan serban /dev/sda CC /dev/hdb CC -new_log
- TEST scm-04 HOST mcmillan OPERATOR serban
- Comment: Compare variously filled sectors
Source disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC) serial #
(3DE03HL300008110CEHF)
Destination disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)

Compare sectors at: Src 1000 (1000+0) Dst 1000 (1000+0)
Src filled by CC from 00000/015/56 000000001000
Dst filled by CC from 00000/015/56 000000001000
0 bytes different

Compare sectors at: Src 1000 (1000+0) Dst 1001 (1001+0)
Src filled by CC from 00000/015/56 000000001000
Dst filled by CD from 00000/015/57 000000001001
488 bytes different

Compare sectors at: Src 1001 (1001+0) Dst 1000 (1000+0)
Src filled by CD from 00000/015/57 000000001001
Dst filled by CC from 00000/015/56 000000001000
488 bytes different

Compare sectors at: Src 1001 (1001+0) Dst 1002 (1002+0)
Src filled by CD from 00000/015/57 000000001001
Dst filled by CE from 00000/015/58 000000001002
488 bytes different

Compare sectors at: Src 1001 (1001+0) Dst 1001 (1001+0)
Src filled by CD from 00000/015/57 000000001001
Dst filled by CD from 00000/015/57 000000001001
0 bytes different

Compare sectors at: Src 1000 (1000+0) Dst 2000 (2000+0)
Src filled by CC from 00000/015/56 000000001000
<table>
<thead>
<tr>
<th>Expected results:</th>
<th>Seccmp creates a log file “seclog.txt”. It detects the sectors are filled, compares them, and displays the number of differences. It logs all the required information correctly.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

**Case Scm-05**

**Case summary:** Compare different combinations of diskwipe-style filled sectors (same or different fill value, same or different headers - i.e., LBA and C/H/S), when the fill values specified on the command line are different. Use:
- interactive specification of sector addresses;
- interactive comment;
- the -new_log option;
- different fill values for the source and destination drives on the command line.

**Tester name:** Serban

**Test date:** Mon Apr  4 17:47:43 2005

**PC:** McMillan

**Disks:**
- **Source:** SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.
- **Dest:** IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

**Execute:** Use `diskchg` to fill sectors:
- `diskchg scm-05 mcmillan serban /dev/sda -fill 1000 1000 0 CC`
- `diskchg scm-05 mcmillan serban /dev/sda -fill 1001 1001 0 CD`
- `diskchg scm-05 mcmillan serban /dev/sda -fill 1002 1002`
0 7F
diskchg scm-05 mcmillan serban /dev/hdb -fill 1000 1000
0 CC
diskchg scm-05 mcmillan serban /dev/hdb -fill 1001 1001
0 CD
diskchg scm-05 mcmillan serban /dev/hdb -fill 1002 1002
0 7F
diskchg scm-05 mcmillan serban /dev/hdb -fill 1003 1003
0 7E
diskchg scm-05 mcmillan serban /dev/hdb -fill 2000 2000
0 CC
diskchg scm-05 mcmillan serban /dev/hdb -fill 2001 2001
0 CD
diskchg scm-05 mcmillan serban /dev/hdb -fill 2002 2002
0 7F

Run seccmp:
seccmp scm-05 mcmillan serban /dev/sda CC /dev/hdb 7F -new_log

and submit the following sector pairs when prompted:
1000 1000
1000 1002
1001 1003
1001 1001
1001 1002
1001 1003
1002 1002
1000 2000
1001 2001
1002 2002

Log files location: Test-archive/seccmp/scm-05
Log file highlights:

Seclog.txt:
seccmp @(#) seccmp.c Linux Version 1.3 Created 03/18/05 at 14:39:56
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3
20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: seccmp scm-05 mcmillan serban /dev/sda CC /dev/hdb
7F -new_log
TEST scm-05 HOST mcmillan OPERATOR serban
Comment: Compare variously filled sectors

Source disk Drive /dev/sda
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-IDE disk</td>
<td>Model (ST336705LC ) serial # (3DE03HL300008110CEHF)</td>
</tr>
<tr>
<td>Destination disk Drive</td>
<td>/dev/hdb</td>
</tr>
<tr>
<td>IDE disk</td>
<td>Model (MAXTOR 6L040J2) serial # (662201137770)</td>
</tr>
<tr>
<td>Compare sectors at: Src 1000 (1000+0) Dst 1000 (1000+0)</td>
<td>Src filled by CC from 00000/015/56 0000000001000</td>
</tr>
<tr>
<td></td>
<td>Dst filled by CC from 00000/015/56 0000000001000</td>
</tr>
<tr>
<td></td>
<td>0 bytes different</td>
</tr>
<tr>
<td>Compare sectors at: Src 1000 (1000+0) Dst 1002 (1002+0)</td>
<td>Src filled by CC from 00000/015/56 0000000001000</td>
</tr>
<tr>
<td></td>
<td>Dst filled by 7F from 00000/015/58 0000000001002</td>
</tr>
<tr>
<td></td>
<td>488 bytes different</td>
</tr>
<tr>
<td>Compare sectors at: Src 1000 (1000+0) Dst 1003 (1003+0)</td>
<td>Src filled by CC from 00000/015/56 0000000001000</td>
</tr>
<tr>
<td></td>
<td>Dst filled by 7E from 00000/015/59 0000000001003</td>
</tr>
<tr>
<td></td>
<td>488 bytes different</td>
</tr>
<tr>
<td>Compare sectors at: Src 1001 (1001+0) Dst 1001 (1001+0)</td>
<td>Src filled by CD from 00000/015/57 0000000001001</td>
</tr>
<tr>
<td></td>
<td>Dst filled by CD from 00000/015/57 0000000001001</td>
</tr>
<tr>
<td></td>
<td>0 bytes different</td>
</tr>
<tr>
<td>Compare sectors at: Src 1001 (1001+0) Dst 1002 (1002+0)</td>
<td>Src filled by CD from 00000/015/57 0000000001001</td>
</tr>
<tr>
<td></td>
<td>Dst filled by 7F from 00000/015/58 0000000001002</td>
</tr>
<tr>
<td></td>
<td>488 bytes different</td>
</tr>
<tr>
<td>Compare sectors at: Src 1001 (1001+0) Dst 1003 (1003+0)</td>
<td>Src filled by CD from 00000/015/57 0000000001001</td>
</tr>
<tr>
<td></td>
<td>Dst filled by 7E from 00000/015/59 0000000001003</td>
</tr>
</tbody>
</table>

Page 74 of 193
<table>
<thead>
<tr>
<th>Expected results:</th>
<th>488 bytes different</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Compare sectors at: Src 1002 (1002+0) Dst 1002 (1002+0)</td>
</tr>
<tr>
<td></td>
<td>Src filled by 7F from 00000/015/58 000000001002</td>
</tr>
<tr>
<td></td>
<td>Dst filled by 7F from 00000/015/58 000000001002</td>
</tr>
<tr>
<td></td>
<td>0 bytes different</td>
</tr>
<tr>
<td></td>
<td>Compare sectors at: Src 1000 (1000+0) Dst 2000 (2000+0)</td>
</tr>
<tr>
<td></td>
<td>Src filled by CC from 00000/015/56 000000001000</td>
</tr>
<tr>
<td></td>
<td>Dst filled by CC from 00000/031/48 000000002000</td>
</tr>
<tr>
<td></td>
<td>5 bytes different</td>
</tr>
<tr>
<td></td>
<td>Compare sectors at: Src 1001 (1001+0) Dst 2001 (2001+0)</td>
</tr>
<tr>
<td></td>
<td>Src filled by CD from 00000/015/57 000000001001</td>
</tr>
<tr>
<td></td>
<td>Dst filled by CD from 00000/031/49 000000002001</td>
</tr>
<tr>
<td></td>
<td>5 bytes different</td>
</tr>
<tr>
<td></td>
<td>Compare sectors at: Src 1002 (1002+0) Dst 2002 (2002+0)</td>
</tr>
<tr>
<td></td>
<td>Src filled by 7F from 00000/015/58 000000001002</td>
</tr>
<tr>
<td></td>
<td>Dst filled by 7F from 00000/031/50 000000002002</td>
</tr>
<tr>
<td></td>
<td>4 bytes different</td>
</tr>
<tr>
<td></td>
<td>run start Mon Apr 4 17:47:43 2005</td>
</tr>
<tr>
<td></td>
<td>run finish Mon Apr 4 17:49:25 2005</td>
</tr>
<tr>
<td></td>
<td>elapsed time 0:1:42</td>
</tr>
<tr>
<td></td>
<td>Normal exit</td>
</tr>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

**Case Scm-06**

**Case summary:** Compare combinations of diskwipe-style filled, zero-filled, and arbitrary sectors. Use:
- interactive specification of sector addresses;
- interactive comment;
- the -log_name option to use an alternate log file name.
<table>
<thead>
<tr>
<th><strong>Tester name:</strong></th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test date:</strong></td>
<td>Mon Apr 4 17:54:35 2005</td>
</tr>
<tr>
<td><strong>PC:</strong></td>
<td>McMillan</td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
<td>Source: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. Dest: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.</td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
<td>Use <code>diskchg</code> to fill, zero, or set sectors to arbitrary contents: Source sectors 1000, 1001, 1002: <code>diskchg scm-06 mcmillan serban /dev/sda -fill 1000 1000 0 CC</code> <code>diskchg scm-06 mcmillan serban /dev/sda -zero 1001</code> <code>diskchg scm-06 mcmillan serban /dev/sda -write 1002 30 55</code> Destination sectors 2000, 2001, 2002: <code>diskchg scm-06 mcmillan serban /dev/hdb -fill 2000 2000 0 7F</code> <code>diskchg scm-06 mcmillan serban /dev/hdb -zero 2001</code> <code>diskchg scm-06 mcmillan serban /dev/hdb -write 2002 30 56</code></td>
</tr>
<tr>
<td>Run <strong>seccmp</strong>.</td>
<td>seccmp scm-06 mcmillan serban /dev/sda CC /dev/hdb 7F -log_name log.txt</td>
</tr>
<tr>
<td><strong>Log files location:</strong></td>
<td>Test-archive/seccmp/scm-06</td>
</tr>
<tr>
<td><strong>Log file highlights:</strong></td>
<td><code>log.txt</code>: seccmp @(#) seccmp.c Linux Version 1.3 Created 03/18/05 at 14:39:56 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: seccmp scm-06 mcmillan serban /dev/sda CC /dev/hdb 7F -log_name log.txt TEST scm-06 HOST mcmillan OPERATOR serban Comment: Compare variously filled sectors, alternate log file</td>
</tr>
</tbody>
</table>
name

Source disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
Destination disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)

Compare sectors at: Src 1000 (1000+0) Dst 2001 (2001+0)
Src 0: 30 30 30 30 30 2F 30 31 35 2F 35 36 20 30 30 30
diff: ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
Dst 0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

... ...

Src 496: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
diff: ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
Dst 496: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
511 bytes different

Compare sectors at: Src 1000 (1000+0) Dst 2002 (2002+0)
Src 0: 30 30 30 30 30 2F 30 31 35 2F 35 36 20 30 30 30
diff: ** ** ** **
Dst 0: 30 30 30 30 30 2F 30 33 31 2F 35 30 20 30 30 30

... ...

Src 496: CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC CC
diff: ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
Dst 496: 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 7F 491 bytes different

Compare sectors at: Src 1001 (1001+0) Dst 2000 (2000+0)
Src 0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Compare sectors at: Src 1001 (1001+0) Dst 2001 (2001+0)
0 bytes different

Compare sectors at: Src 1001 (1001+0) Dst 2002 (2002+0)
Src: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Diff: *** *** *** *** *** *** *** *** *** *** *** *** ***
Dst: 30 30 30 30 30 2F 30 33 31 2F 35 30 20 30 30 30

Compare sectors at: Src 1002 (1002+0) Dst 2000 (2000+0)
Src: 30 30 30 30 30 2F 30 31 35 2F 35 38 20 30 30 30
Diff: *** *** ***
Dst: 30 30 30 30 30 2F 30 33 31 2F 34 38 20 30 30 30

Compare sectors at: Src 1002 (1002+0) Dst 2001 (2001+0)
Src: 30 30 30 30 30 2F 30 31 35 2F 35 38 20 30 30 30
Diff: *** *** *** *** *** *** *** *** *** *** *** *** ***
Dst: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

511 bytes different
**Case Scm-07**

Case summary: Test whether seccmp displays its usage mode when invoked with the -h option.

Tester name: Serban

Test date: Mon Apr 4 18:00:00 2005

PC: McMillan

Disks: None.

Execute:

```
seccmp > output.txt
seccmp scm-07 mcmillan serban /dev/sda -logname >> output.txt
seccmp -h >> output.txt
seccmp scm-07 mcmillan serban /dev/sda CC /dev/hdb 7F -h >> output.txt
```

Log files location: Test-archive/seccmp/scm-07

Log file highlights:

```
output.txt:
```
<table>
<thead>
<tr>
<th>seccmp compiled at 19:16:47 on Mar 25 2005</th>
</tr>
</thead>
</table>
Usage: seccmp test-case host operator src-driv src-label dst-driv dst-label [-options]
-comment "..." Descriptive comment
-sector src_lba dst_lba Specify the sectors to compare
-new_log Start a new log file (default is append to old log file)
-log_name <name> Use different log file (default is seclog.txt)
-h Print this option list

<table>
<thead>
<tr>
<th>Expected results:</th>
<th>Seccmp displays its usage mode in each case: when invoked without arguments, with incorrect arguments, with the –h option alone on the command line, and with the –h option plus correct arguments.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
### 3.2.5 Partcmp Test Results Summary

<table>
<thead>
<tr>
<th>Case Pcm-01</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong></td>
</tr>
<tr>
<td><strong>Tester name:</strong></td>
</tr>
<tr>
<td><strong>Test date:</strong></td>
</tr>
<tr>
<td><strong>PC:</strong></td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Log files location:</strong></td>
</tr>
<tr>
<td><strong>Log file highlights:</strong></td>
</tr>
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<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Partition Table

<table>
<thead>
<tr>
<th>Partition Type</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>Length (Cyl)</th>
<th>Boot</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 P P</td>
<td>000000063</td>
<td>020482812</td>
<td>020482875</td>
<td></td>
<td>Fat32X</td>
</tr>
<tr>
<td>2 P P</td>
<td>020482875</td>
<td>020482875</td>
<td>020482875</td>
<td></td>
<td>Linux</td>
</tr>
<tr>
<td>3 X P</td>
<td>00000063</td>
<td>000417627</td>
<td>000417627</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td>4 S P</td>
<td>00000063</td>
<td>000417627</td>
<td>000417627</td>
<td></td>
<td>Fat32</td>
</tr>
<tr>
<td>5 x P</td>
<td>000417690</td>
<td>000417690</td>
<td>000417690</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td>6 S P</td>
<td>000000063</td>
<td>000417627</td>
<td>000417627</td>
<td></td>
<td>Fat16</td>
</tr>
<tr>
<td>7 S P</td>
<td>000000000</td>
<td>000000000</td>
<td>000000000</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td>8 P P</td>
<td>000000000</td>
<td>000000000</td>
<td>000000000</td>
<td></td>
<td>extended</td>
</tr>
</tbody>
</table>

**Source disk partition 1 at 63 for 18426492**

**Destination disk Drive /dev/sda**

- 04461/254/63 (max cyl/hd values)
- 04462/255/63 (number of cyl/hd)
- 71687370 total number of sectors

**Non-IDE disk**

- Model (ST336705LC ) serial # (3DE03HL300008110CEHF)

**N** Start LBA Length Start C/H/S End C/H/S boot

**Partition type**

<table>
<thead>
<tr>
<th>Partition Type</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>Length (Cyl)</th>
<th>Boot</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 P P</td>
<td>000000063</td>
<td>020482812</td>
<td>020482875</td>
<td></td>
<td>Fat32X</td>
</tr>
<tr>
<td>2 P P</td>
<td>020482875</td>
<td>020482875</td>
<td>020482875</td>
<td></td>
<td>Linux</td>
</tr>
<tr>
<td>3 X P</td>
<td>00000063</td>
<td>000417627</td>
<td>000417627</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td>4 S P</td>
<td>00000063</td>
<td>000417627</td>
<td>000417627</td>
<td></td>
<td>Fat32</td>
</tr>
<tr>
<td>5 x P</td>
<td>000417690</td>
<td>000417690</td>
<td>000417690</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td>6 S P</td>
<td>000000063</td>
<td>000417627</td>
<td>000417627</td>
<td></td>
<td>Fat16</td>
</tr>
<tr>
<td>7 S P</td>
<td>000000000</td>
<td>000000000</td>
<td>000000000</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td>8 P P</td>
<td>000000000</td>
<td>000000000</td>
<td>000000000</td>
<td></td>
<td>extended</td>
</tr>
<tr>
<td></td>
<td>00 empty entry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P primary partition (1-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>S secondary (sub) partition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X primary extended partition (1-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>x secondary extended partition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Destination disk partition 1 at 63 for 20482812</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source disk fill byte 7F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Destination disk fill byte CC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source base sector 63 Destination base sector 63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sectors compared: 18426492</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sectors match: 18426492</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sectors differ: 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bytes differ: 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diffs range:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source (18426492) has 2056320 fewer sectors than destination (20482812)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zero fill: 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Src Byte fill (7F): 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dst Byte fill (CC): 2056320</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other fill: 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other no fill: 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zero fill range:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Src fill range:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dst fill range: 18426492-20482811</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other fill range:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other not filled range:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>run start Tue Apr 5 14:03:31 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>run finish Tue Apr 5 14:21:12 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>elapsed time 0:17:41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Normal exit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Expected results:**

Partcmp creates a new log file “cmpptlog.txt”. It logs the comment and the other information as required. It displays the partition table entries and assigns them indexes. It prompts the user for indexes. It compares the partitions indicated by the user through their indexes, and displays the result, including the number and range of different and equal sectors. For the destination partition, which is larger, it categorizes the surplus sectors.

**Actual results:**

No anomalies detected.

**Analysis:**

Expected results achieved.

---

**Case Pcm-02**

**Case summary:**

Compare large primary FAT32 partitions, where the source partition is bigger than the destination partition and
they have *almost* the same contents on the smaller length. Select the partitions to compare by using the `-select` option. Also compare the boot tracks for those partitions, by using the `-boot` option. Test how `partcmp` creates a new log file with the default name although a log file with the same name exists, logs a multi-word comment entered on the command line, logs the disks and the partitions, and logs the program execution.

<table>
<thead>
<tr>
<th>Tester name:</th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Tue Apr 5 15:25:58 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
</tbody>
</table>

**Execute:**

Modify a few sectors in the source partition by using `diskchg` (we assume the partitions had the same contents on the smaller length):

```
  diskchg pcm-02 mcmillan serban /dev/sda -fill 1000 1000 0 AA
  diskchg pcm-02 mcmillan serban /dev/sda -zero 2000
  diskchg pcm-02 mcmillan serban /dev/sda -write 3000 30 AA
```

Run `partcmp`:

```
  partcmp pcm-02 mcmillan serban /dev/sda CC /dev/hdb 7F -select 1 1 -boot -comment "Compare FAT32 slightly different, src > dst" -new_log
```

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/partcmp/pcm-02</th>
</tr>
</thead>
</table>

**Cmpptlog.txt:**

```
 partcmp @(#) partcmp.c Linux Version 1.3 Created 03/15/05 at 17:25:33
 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
 @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
 support lib compiled Mar 25 2005 at 19:16:46
 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
 cmd: partcmp pcm-02 mcmillan serban /dev/sda CC /dev/hdb 7F -select 1 1 -boot -comment Compare FAT32 slightly different, src > dst -new_log
```
Comment: Compare FAT32 slightly different, src > dst
Source disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC) serial #
(3DE03HL300008110CEHF)

<table>
<thead>
<tr>
<th>Source disk partition</th>
<th>Destination disk Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda</td>
<td>/dev/hdb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source disk Drive</th>
<th>Destination disk Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda</td>
<td>/dev/hdb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source disk partition</th>
<th>Destination disk Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda</td>
<td>/dev/hdb</td>
</tr>
</tbody>
</table>

Source disk partition 1 at 63 for 20482812
Destination disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
<table>
<thead>
<tr>
<th>Case Pcm-03</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary:</td>
<td>Compare primary Linux Ext2 partitions, where the source partition is bigger than the destination partition and they have the same contents on the smaller length. Also compare the boot tracks for those partitions, by using the -</td>
</tr>
</tbody>
</table>
boot option.
Test whether `partcmp` appends the log records to the existing log file, prompts the user for a comment and partition indexes, logs the comment, the disks, and the partitions, and logs the program execution.

Tester name: Serban
Test date: Tue Apr 5 16:15:22 2005
PC: McMillan

Disks:
Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.
Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF

Execute:
Run `partcmp`:
```
partcmp pcm-03 mcmillan serban /dev/hdb 7F /dev/sda CC -boot
```

Log files location: Test-archive/partcmp/pcm-03
Log file highlights: `Cmpptlog.txt`:

```
-----Log of the previous case, followed by-----

partcmp @(#) partcmp.c Linux Version 1.3 Created 03/15/05 at 17:25:33
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: partcmp pcm-03 mcmillan serban /dev/hdb 7F /dev/sda CC -boot
TEST pcm-03 HOST mcmillan OPERATOR serban
Comment: Compare Linux Ext2, append log, src > dst, equal contents

Source disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial # 662201137770
N Start LBA Length Start C/H/S End C/H/S boot
Partition type
1 P 000000063 018426492 0000/001/01 1023/254/63
```
| 1 P 000000063 020482812 0000/001/01 1023/254/63      |
| 2 P 018426555 022539195 1023/000/01 1023/254/63      |
| 83 Linux                      |
| 3 X 040965750 000835380 1023/000/01 1023/254/63      |
| 0F extended                   |
| 4 S 0000000063 000417627 1023/001/01 1023/254/63      |
| 0B Fat32                      |
| 5 x 000417690 000417690 1023/000/01 1023/254/63      |
| 05 extended                   |
| 6 S 0000000063 000417627 1023/001/01 1023/254/63      |
| 06 Fat16                      |
| 7 S 000000000 000000000 0000/000/00 0000/000/00       |
| 00 empty entry                |
| 8 P 0000000000 000000000 0000/000/00 0000/000/00      |
| 00 empty entry                |
| P primary partition (1-4)     |
| S secondary (sub) partition   |
| X primary extended partition (1-4) |
| x secondary extended partition |
| Source disk partition 2 at 18426555 for 22539195   |
| Destination disk Drive /dev/sda |
| 04461/254/63 (max cyl/hd values) |
| 04462/255/63 (number of cyl/hd) |
| 71687370 total number of sectors |
| Non-IDE disk                   |
| Model (ST336705LC) serial # (3DE03HL300008110CEHF) |
| N Start LBA Length Start C/H/S End C/H/S boot      |
| Partition type                 |
| 1 P 000000063 020482812 0000/001/01 1023/254/63      |
| 0C Fat32X                      |
| 2 P 020482875 020482875 1023/000/01 1023/254/63      |
| 83 Linux                      |
| 3 X 040965750 001044225 1023/000/01 1023/254/63      |
| 0F extended                   |
| 4 S 0000000063 000417627 1023/001/01 1023/254/63      |
| 0B Fat32                      |
| 5 x 000417690 000626535 1023/000/01 1023/254/63      |
| 05 extended                   |
| 6 S 0000000063 000626472 1023/001/01 1023/254/63      |
| 06 Fat16                      |
| 7 S 0000000000 000000000 0000/000/00 0000/000/00      |
| 00 empty entry                |
| 8 P 0000000000 000000000 0000/000/00 0000/000/00      |
| 00 empty entry                |
| P primary partition (1-4)     |
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Destination disk partition 2 at 20482875 for 20482875
Source disk fill byte 7F
Destination disk fill byte CC
Source base sector 18426492 Destination base sector 20482812
Sectors compared: 20482938
Sectors match: 20482875
Sectors differ: 63
Bytes differ: 31185
Diffs range: 0-62
Source (22539258) has 2056320 more sectors than destination (20482938)
run start Tue Apr 5 16:15:22 2005
run finish Tue Apr 5 16:34:33 2005
elapsed time 0:19:11
Normal exit

Expected results: Partcmp appends the log records to the log file "cmpptlog.txt". It prompts the user for a comment, logs the partitions, prompts the user to select the partitions to be compared. It logs the other information as required. It compares the partitions selected by the user, including the boot tracks, and displays the result, including the number and range of different and equal sectors.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

---

Case Pcm-04

Case summary: Compare logical Fat32 partitions with the same size and contents. Also compare the boot tracks for those partitions, by using the -boot option.
Test whether partcmp creates a log file with an alternate name when using the -log_name option.

Tester name: Serban
Test date: Tue Apr 5 16:47:25 2005
PC: McMillan
Disks:
Source: IDE, /dev/hdb, external label "7F", model MAXTOR 6L040J2, serial # 662201137770.
Destination: SCSI, /dev/sda, external label "CC", model ST336705LC, serial # 3DE03HL300008110CEHF

Execute: Run partcmp.
partcmp pcm-04 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -log_name pcmlog.txt

Log files location: Test-archive/partcmp/pcm-04
Log file highlights:

**Pcmlog.txt:**
partcmp @(#) partcmp.c Linux Version 1.3 Created 03/15/05 at 17:25:33
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: partcmp pcm-04 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -log_name pcmlog.txt
TEST pcm-04 HOST mcmillan OPERATOR serban
Comment: Alternate log file name, logical partitions equal in size and content

Source disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)
N Start LBA Length Start C/H/S End C/H/S boot Partition type
Partition 1 P 0000000063 018426492 0000/001/01 1023/254/63 0C Fat32X
2 P 018426555 022539195 1023/000/01 1023/254/63 83 Linux
3 X 040965750 000835380 1023/000/01 1023/254/63 0F extended
4 S 0000000063 00417627 1023/000/01 1023/254/63 0B Fat32
5 x 00417690 000417690 1023/000/01 1023/254/63 05 extended
6 S 0000000063 00417627 1023/000/01 1023/254/63 06 Fat16
7 S 0000000000 0000000000 0000/000/00 0000/000/00 00 00 empty entry
8 P 0000000000 0000000000 0000/000/00 00 00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Source disk partition 4 at 40965813 for 417627
Destination disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
N Start LBA Length Start C/H/S End C/H/S boot
Partition type
1 P 000000063 020482812 0000/001/01 1023/254/63
0C Fat32X
2 P 020482875 020482875 1023/000/01 1023/254/63
83 Linux
3 X 040965750 001044225 1023/000/01 1023/254/63
0F extended
4 S 000000063 00417627 1023/001/01 1023/254/63
0B Fat32
5 x 000417690 000626535 1023/000/01 1023/254/63
05 extended
6 S 000000063 000626472 1023/001/01 1023/254/63
06 Fat16
7 S 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
8 P 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Destination disk partition 4 at 40965813 for 417627
Source disk fill byte 7F
Destination disk fill byte CC
Source base sector 40965750 Destination base sector 40965750
Sectors compared: 417690
Sectors match: 417627
Sectors differ: 63
Bytes differ: 30310
Diffs range: 0-62
run start Tue Apr  5 16:47:25 2005
run finish Tue Apr  5 16:48:43 2005
elapsed time 0:1:18
Normal exit
**Expected results:**

`Partcmp` creates a new log file with the name “pcmlog.txt”. It prompts the user for a comment, logs the comment, disks, partitions, prompts the user to select the partitions to be compared. It logs the other information as required.

It compares the partitions selected by the user, including the boot tracks, and displays the result, including the number and range of different and equal sectors.

**Actual results:**

No anomalies detected.

**Analysis:**

Expected results achieved.

---

### Case Pcm-05

**Case summary:**

Compare logical Fat32 partitions with the same size and slightly different contents. Also compare the boot tracks for those partitions, by using the `–boot` option.

Test whether `partcmp` appends the log records to an existing log file with an alternate name when using the `–log_name` option.

**Tester name:** Serban

**Test date:** Tue Apr 5 16:55:30 2005

**PC:** McMillan

**Disks:**

*Source:* IDE, `/dev/hdb`, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

*Destination:* SCSI, `/dev/sda`, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF

**Execute:**

Modify a few sectors of the source partition by using `diskchg`:

```
diskchg pcm-05 mcmillan serban /dev/hdb -fill 40966813 40966813 0 AA
diskchg pcm-05 mcmillan serban /dev/hdb -fill 40967813 40967813 0 AA
diskchg pcm-05 mcmillan serban /dev/hdb -fill 40968813 40968813 0 AA
diskchg pcm-05 mcmillan serban /dev/hdb -fill 40969813 40969813 0 AA
```

Run `partcmp`:

```
partcmp pcm-05 mcmillan serban /dev/hdb 7F /dev/sda CC -log_name pcmlog.txt -boot
```

**Log files location:** Test-archive/partcmp/pcm-05

**Log file highlights:** `Pcmlog.txt:`
Log of the previous case, followed by:

```
partcmp @(#) partcmp.c Linux Version 1.3 Created
03/15/05 at 17:25:33
3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at
09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.c Linux Version 1.1 Created 02/10/05 at
10:53:24
```

```
cmd: partcmp pcm-05 mcmillan serban /dev/hdb 7F
/dev/sda CC -log_name pcmlog.txt -boot
TEST pcm-05 HOST mcmillan OPERATOR serban
Comment: Append to alternate log file, equal partitions
except a few sectors
```

Source disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
N Start LBA Length Start C/H/S End C/H/S boot
Partition type
1 P 000000063 018426492 0000/001/01 1023/254/63
0C Fat32X
2 P 018426555 022539195 1023/000/01 1023/254/63
83 Linux
3 X 040965750 000835380 1023/000/01 1023/254/63
0F extended
4 S 000000063 004017627 1023/001/01 1023/254/63
0B Fat32
5 x 0000417690 00417690 1023/000/01 1023/254/63
05 extended
6 S 000000063 004017627 1023/001/01 1023/254/63
06 Fat16
7 S 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
8 P 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
```
<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
</tr>
</thead>
</table>
| disk partition 4 at 40965813 for 417627 | Drive /dev/sda 04461/254/63 (max cyl/hd values)  
04462/255/63 (number of cyl/hd)  
71687370 total number of sectors | Non-IDE disk  
Model (ST336705LC) serial # (3DE03HL300008110CEHF) |

<table>
<thead>
<tr>
<th>Partition type</th>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 P</td>
<td>000000063</td>
<td>020482812</td>
<td>0000/001/01</td>
<td>1023/254/63</td>
<td>0C Fat32X</td>
</tr>
<tr>
<td>2 P</td>
<td>020482875</td>
<td>020482875</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>83 Linux</td>
</tr>
<tr>
<td>3 X</td>
<td>040965750</td>
<td>001044225</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>0F extended</td>
</tr>
<tr>
<td>4 S</td>
<td>000000063</td>
<td>000417627</td>
<td>1023/001/01</td>
<td>1023/254/63</td>
<td>0B Fat32</td>
</tr>
<tr>
<td>5 X</td>
<td>000417690</td>
<td>000626535</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>05 extended</td>
</tr>
<tr>
<td>6 S</td>
<td>000000063</td>
<td>000626472</td>
<td>1023/001/01</td>
<td>1023/254/63</td>
<td>06 Fat16</td>
</tr>
<tr>
<td>7 S</td>
<td>000000000</td>
<td>000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>00 empty entry</td>
</tr>
<tr>
<td>8 P</td>
<td>000000000</td>
<td>000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>00 empty entry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partition type</th>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot</th>
</tr>
</thead>
<tbody>
<tr>
<td>P primary partition (1-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S secondary (sub) partition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X primary extended partition (1-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x secondary extended partition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Destination disk partition 4 at 40965813 for 417627 | Source disk fill byte 7F |
| Destination disk fill byte CC | Source base sector 40965750 Destination base sector 40965750 |

| Sectors compared: | 417690 |
| Sectors match: | 417623 |
| Sectors differ: | 67 |
| Bytes differ: | 32354 |
| Diffs range: | 0-62, 1063, 2063, 3063, 4063 |
| run start | Tue Apr 5 16:55:30 2005 |
| run finish | Tue Apr 5 16:56:19 2005 |
| elapsed time | 0:0:49 |
| Normal exit |

**Expected results:** *Partcmp* appends the log records to the existing log file with the name “pcmlog.txt”. It prompts the user for a
comment, logs the comment, disks, partitions, prompts the user to select the partitions to be compared. It logs the other information as required.
It compares the partitions selected by the user, including the boot tracks, and displays the result, including the number and range of different and equal sectors.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Pcm-06

Case summary: Compare logical Fat16 partitions with the source size smaller than the destination size, and with the same contents on the smaller size. Also compare the boot tracks for those partitions, by using the -boot option.
Test whether partcmp creates a new log file with an alternate name although a file with the same name already exists, by using the -log_name and -new_log options.

Tester name: Serban
Test date: Tue Apr 5 17:00:12 2005
PC: McMillan
Disks:
Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.
Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL30008110CEHF

Execute: Run partcmp:

partcmp pcm-06 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -log_name pcmlog.txt -new_log

Log files location: Test-archive/partcmp/pcm-06

Log file highlights:

```
partcmp @(#) partcmp.c Linux Version 1.3 Created 03/15/05 at 17:25:33
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: partcmp pcm-06 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -log_name pcmlog.txt -new_log
TEST pcm-06 HOST mcmillan OPERATOR serban
Comment: New alternate log file, src < dst, but equal
```

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contents on the lesser length

Source disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)

<table>
<thead>
<tr>
<th>N</th>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot Partition type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 P</td>
<td>0000000063</td>
<td>018426492</td>
<td>0000/001/01</td>
<td>1023/254/63</td>
<td>0C Fat32X</td>
</tr>
<tr>
<td>2 P</td>
<td>018426555</td>
<td>022539195</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>83 Linux</td>
</tr>
<tr>
<td>3 X</td>
<td>040965750</td>
<td>000835380</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>0F extended</td>
</tr>
<tr>
<td>4 S</td>
<td>0000000063</td>
<td>000417627</td>
<td>1023/001/01</td>
<td>1023/254/63</td>
<td>0B Fat32</td>
</tr>
<tr>
<td>5 x</td>
<td>000417690</td>
<td>000417690</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>05 extended</td>
</tr>
<tr>
<td>6 S</td>
<td>0000000063</td>
<td>000417627</td>
<td>1023/001/01</td>
<td>1023/254/63</td>
<td>06 Fat16</td>
</tr>
<tr>
<td>7 S</td>
<td>0000000000</td>
<td>0000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>00 empty entry</td>
</tr>
<tr>
<td>8 P</td>
<td>0000000000</td>
<td>0000000000</td>
<td>0000/000/00</td>
<td>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

Source disk partition 6 at 41383503 for 417627

destination disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

<table>
<thead>
<tr>
<th>N</th>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot Partition type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 P</td>
<td>0000000063</td>
<td>020482812</td>
<td>0000/001/01</td>
<td>1023/254/63</td>
<td>0C Fat32X</td>
</tr>
<tr>
<td>2 P</td>
<td>020482875</td>
<td>020482875</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>83 Linux</td>
</tr>
<tr>
<td>3 X</td>
<td>040965750</td>
<td>001044225</td>
<td>1023/000/01</td>
<td>1023/254/63</td>
<td>0F extended</td>
</tr>
</tbody>
</table>
4 S 000000063 000417627 1023/001/01 1023/254/63
0B Fat32
5 x 000417690 000626535 1023/000/01 1023/254/63
05 extended
6 S 000000063 000626472 1023/001/01 1023/254/63
06 Fat16
7 S 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
8 P 000000000 000000000 0000/000/00 0000/000/00
00 empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Destination disk partition 6 at 41383503 for 626472
Source disk fill byte 7F
Destination disk fill byte CC
Source base sector 41383440 Destination base sector
41383440
Sectors compared: 417690
Sectors match: 417627
Sectors differ: 63
Bytes differ: 30135
Diffs range: 0-62
Source (417690) has 208845 fewer sectors than
destination (626535)
Zero fill: 0
Src Byte fill (7F): 0
Dst Byte fill (CC): 208845
Other fill: 0
Other no fill: 0
Zero fill range:
Src fill range:
Dst fill range: 417690-626534
Other fill range:
Other not filled range:
run start Tue Apr 5 17:00:12 2005
run finish Tue Apr 5 17:01:31 2005
elapsed time 0:1:19
Normal exit

Expected results: Partcmp creates a new log file “pcmlog.txt”, although a
file with the same name already exists.
It prompts the user for a comment, logs the comment,
disks, partitions, prompts the user to select the partitions
to be compared. It logs the other information as required.
It compares the partitions selected by the user, including
the boot tracks, and displays the result, including the number and range of different and equal sectors. It categorizes the surplus destination sectors.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Pcm-07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary: Test whether <code>partcmp</code> detects invalid partition indexes, for example, indexes that point to empty partition table entries.</td>
</tr>
<tr>
<td>Tester name: Serban</td>
</tr>
<tr>
<td>Test date: Tue Apr 5 17:04:00 2005</td>
</tr>
<tr>
<td>PC: McMillan</td>
</tr>
<tr>
<td>Execute: Run <code>partcmp</code> with partition indexes pointing to empty partition table entries: <code>partcmp pcm-07 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -new_log -select 8 8</code></td>
</tr>
<tr>
<td>Log files location: Test-archive/partcmp/pcm-07</td>
</tr>
<tr>
<td>Log file highlights: <code>Cmpptlog.txt</code>: partcmp @(#) partcmp.c Linux Version 1.3 Created 03/15/05 at 17:25:33 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: partcmp pcm-07 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -new_log -select 8 8 TEST pcm-07 HOST mcmillan OPERATOR serban Comment: Indexes of empty entries</td>
</tr>
<tr>
<td>Source disk Drive /dev/hdb 04865/254/63 (max cyl/hd values) 04866/255/63 (number of cyl/hd) 78177792 total number of sectors IDE disk: Model (MAXTOR 6L040J2) serial #</td>
</tr>
<tr>
<td>Partition type</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>1 P</td>
</tr>
<tr>
<td>2 P</td>
</tr>
<tr>
<td>3 X</td>
</tr>
<tr>
<td>4 S</td>
</tr>
<tr>
<td>5 x</td>
</tr>
<tr>
<td>6 S</td>
</tr>
<tr>
<td>7 S</td>
</tr>
</tbody>
</table>

- P primary partition (1-4)
- S secondary (sub) partition
- X primary extended partition (1-4)
- x secondary extended partition
- Source disk partition 8 at 0 for 0
- Destination disk Drive /dev/sda
- 04461/254/63 (max cyl/hd values)
- 04462/255/63 (number of cyl/hd)
- 71687370 total number of sectors
- Non-IDE disk
- Model (ST336705LC ) serial #
- (3DE03HL300008110CEHF)
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected results:</td>
<td><em>Partcmp</em> issues an error message and terminates execution.</td>
</tr>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

### Case Pcm-08

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test whether <em>partcmp</em> detects invalid partition indexes, for example, indexes that do not point to a partition table entry.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Tue Apr 5 17:06:00 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.</td>
</tr>
<tr>
<td></td>
<td>Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <em>partcmp</em> with partition indexes that do not point to any partition table entries:</td>
</tr>
<tr>
<td></td>
<td>partcmp pcm-08 mcmillan serban /dev/hdb 7F /dev/sda CC -boot -new_log -select 9 9</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/partcmp/pcm-08</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td><strong>Cmpptlog.txt:</strong> partcmp @(#) partcmp.c Linux Version 1.3 Created 03/15/05 at 17:25:33 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td>Case Pcm-09</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Case summary:</strong> Test whether <strong>partcmp</strong> displays its usage mode when</td>
<td></td>
</tr>
<tr>
<td>invoked with the <strong>-h</strong> option.</td>
<td></td>
</tr>
<tr>
<td><strong>Tester name:</strong> Serban</td>
<td></td>
</tr>
<tr>
<td><strong>Test date:</strong> Tue Apr 5 17:04:00 2005</td>
<td></td>
</tr>
<tr>
<td><strong>PC:</strong> McMillan</td>
<td></td>
</tr>
</tbody>
</table>
| **Disks:** Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.  
      Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| **Execute:** Run **partcmp** without arguments, with incorrect arguments,  
      with the **-h** option alone on the command line, with correct arguments  
      and the **-h** option. Capture its standard output into a file:         |
| **Log files location:** Test-archive/partcmp/pcm-09                        |
| **Log file highlights:** **partcmp:** Missing parameters  
      Usage: partcmp test-case host operator src-drive src-fill  
      dst-drive dst-fill [-options]  
      -select src dst  Select partitions to compare  
      -boot Include Boot track in compare  
      -comment " ... "  Descriptive comment  
      -new_log  Start a new log file (default is append to  
      old log file)  
      -log_name <name>  Use different log file (default is cmpptlog.txt)  

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>Print this option list</td>
</tr>
</tbody>
</table>

| Expected results: | Partcmp displays its usage mode in each case. |
| Actual results:   | No anomalies detected. |
| Analysis:         | Expected results achieved. |
### 3.2.6 Diskcmp Test Results Summary

<table>
<thead>
<tr>
<th>Case Dcm-01</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong></td>
</tr>
<tr>
<td><strong>Tester name:</strong></td>
</tr>
<tr>
<td><strong>Test date:</strong></td>
</tr>
<tr>
<td><strong>PC:</strong></td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Log files location:</strong></td>
</tr>
<tr>
<td><strong>Log file highlights:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>04462/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td>71687370 total number of sectors</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Sectors compared: 71687370</td>
</tr>
<tr>
<td>Sectors differ: 0</td>
</tr>
<tr>
<td>Diffs range</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>elapsed time 1:3:59</td>
</tr>
</tbody>
</table>

**Expected results:**

`Diskcmp` creates a new log file with the default name "cmplog.txt". It logs the comment, the drives, and the other information required.

`Diskcmp` compares the disks and logs the number of sectors compared, and the number of equal and different sectors.

**Actual results:**

No anomalies detected.

**Analysis:**

Expected results achieved.

### Case Dcm-02

**Case summary:**

Compare SCSI/IDE hard disk drives, when the source drive is smaller than the destination drive, and they have almost the same contents on the smaller size. Also, test how `diskcmp` appends the log records to an existing log file with the default name, logs a multi-word comment entered on the command line, logs the disks, the comparison result, and the program execution.

**Tester name:**

serban

**Test date:**

Wed Apr 6 11:23:49 2005

**PC:**

McMillan

**Disks:**

Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

**Execute:**

Modify a few sectors of the source disk (we assume that the drives had the same contents on the smaller size):
Run `diskcmp` to compare the disks:

diskcmp dcm-02 mcmillan serban /dev/sda CC /dev/hdb
7F -comment "Compare disks, src<dst, almost equal contents, append log"

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/diskcmp/dcm-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td>Cmplog.txt:</td>
</tr>
<tr>
<td></td>
<td>diskcmp @(#) diskcmp.c Linux Version 1.2 Created 02/18/05 at 08:49:40</td>
</tr>
<tr>
<td></td>
<td>compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12</td>
</tr>
<tr>
<td></td>
<td>support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24</td>
</tr>
<tr>
<td></td>
<td>cmd: diskcmp dcm-01 mcmillan serban /dev/hdb 7F /dev/sda CC -comment CompareDisks</td>
</tr>
<tr>
<td></td>
<td>TEST dcm-01 HOST mcmillan OPERATOR serban</td>
</tr>
<tr>
<td></td>
<td>Comment: CompareDisks</td>
</tr>
<tr>
<td></td>
<td>Source Drive /dev/hdb</td>
</tr>
<tr>
<td></td>
<td>04865/254/63 (max cyl/hd values)</td>
</tr>
<tr>
<td></td>
<td>04866/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td></td>
<td>78177792 total number of sectors</td>
</tr>
<tr>
<td></td>
<td>IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770)</td>
</tr>
<tr>
<td></td>
<td>Destination Drive /dev/sda</td>
</tr>
<tr>
<td></td>
<td>04461/254/63 (max cyl/hd values)</td>
</tr>
<tr>
<td></td>
<td>04462/255/63 (number of cyl/hd)</td>
</tr>
<tr>
<td></td>
<td>71687370 total number of sectors</td>
</tr>
<tr>
<td></td>
<td>Non-IDE disk</td>
</tr>
<tr>
<td></td>
<td>Model (ST336705LC ) serial # (3DE03HL300008110CEHF)</td>
</tr>
<tr>
<td></td>
<td>Sectors compared: 71687370</td>
</tr>
<tr>
<td></td>
<td>Sectors match: 71687370</td>
</tr>
<tr>
<td></td>
<td>Sectors differ: 0</td>
</tr>
<tr>
<td></td>
<td>Bytes differ: 0</td>
</tr>
</tbody>
</table>
Diffs range
Source (78177792) has 6490422 more sectors than
destination (71687370)
0 source read errors, 0 destination read errors
run start Wed Apr 6 09:38:33 2005
run finish Wed Apr 6 10:42:32 2005
elapsed time 1:3:59
Normal exit
diskcmp @(#) diskcmp.c Linux Version 1.2 Created
02/18/05 at 08:49:40
3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at
09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at
10:53:24
cmd: diskcmp dcm-02 mcmillan serban /dev/sda CC
/dev/hdb 7F -comment Compare disks, src<dst, almost
equal contents, append log
TEST dcm-02 HOST mcmillan OPERATOR serban
Comment: Compare disks, src<dst, almost equal contents,
append log
Source Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
Destination Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
Sectors compared: 71687370
Sectors match: 71687366
Sectors differ: 4
Bytes differ: 1968
Diffs range 0, 1000000, 2000000, 71687369
Source (71687370) has 6490422 fewer sectors than
destination (78177792)
Zero fill: 3
Src Byte fill (CC): 0
Dst Byte fill (7F): 6490419
### Expected results:

_Diskcmp_ appends the log records to the existing log file with the default name "cmplog.txt". It logs the comment, the drives, and the other information required.

_Diskcmp_ compares the disks and logs the number of sectors compared, and the number of equal and different sectors. It categorizes the destination surplus sectors.

### Actual results:
No anomalies detected.

### Analysis:
Expected results achieved.

---

### Case Dcm-03

**Case summary:**
Compare IDE hard disk drives with the same size, filled in diskwipe-style with the same value, and with a few different sectors at known addresses.

Also, test whether _diskcmp_ creates a new log file with the default name although a file with the same name already exists, by using the `-new_log` option. Test whether _diskcmp_ prompts the user for a comment, logs the comment, disk drives, and other information required, compares the drives, logs the comparison result and the program execution.

**Tester name:** Serban

**Test date:** Thu Apr 7 07:17:36 2005

**PC:** McMillan

**Disks:**
Source: IDE, /dev/hdb, external label "82", model WDC WD800BB-00CAA1, serial # WD-WCA8E5277475.

Destination: IDE, /dev/hdd, external label "80", model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999.

**Execute:**
Initialize both disks with the same value 0x82. Note: for the success of this test case, you need to check whether
*diskwipe* detects and uses the same geometry for both disks; if not, you have to use the -heads option.

```bash
diskwipe dcm-03 mcmillan serban /dev/hdb 82 -src
diskwipe dcm-03 mcmillan serban /dev/hdd 82 -dst
```

Modify a few sectors of the destination disk:

```bash
diskchg dcm-03 mcmillan serban /dev/hdd -fill 0 0 0 AA
diskchg dcm-03 mcmillan serban /dev/hdd -write
156301487 511 AA
diskchg dcm-03 mcmillan serban /dev/hdd -zero
100000000
```

Run *diskcmp* to compare the disks:

```bash
diskcmp dcm-03 mcmillan serban /dev/hdb 82 /dev/hdd 82 -new_log
```

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/diskcmp/dcm-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td><code>Cmplog.txt:</code></td>
</tr>
</tbody>
</table>

*Cmplog.txt:*

```bash
diskcmp @(#) diskcmp.c Linux Version 1.2 Created 02/18/05 at 08:49:40
compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: diskcmp dcm-03 mcmillan serban /dev/hdb 82 /dev/hdd 82 -new_log
TEST dcm-03 HOST mcmillan OPERATOR serban
Comment: Compare same size disks, almost equal contents
```

Source Drive /dev/hdb
09728/254/63 (max cyl/hd values)
09729/255/63 (number of cyl/hd)
156301488 total number of sectors
IDE disk: Model (WDC WD800BB-00CAA1) serial #
(WD-WCA8E5277475)

Destination Drive /dev/hdd
09728/254/63 (max cyl/hd values)
09729/255/63 (number of cyl/hd)
156301488 total number of sectors
IDE disk: Model (WDC WD800BB-00CAA1) serial #
(WD-WCA8E5174999)  
Sectors compared: 156301488  
Sectors match: 156301485  
Sectors differ: 3  
Bytes differ: 998  
Diffs range 0, 100000000, 156301487  
0 source read errors, 0 destination read errors  
run start Thu Apr 7 07:17:36 2005  
run finish Thu Apr 7 09:51:55 2005  
elapsed time 2:34:19  
Normal exit  

Expected results:  
*Diskcmp* creates a new log file with the default name “cmplog.txt, although a log file with the same name already exists. It prompts the user for a comment. It logs the comment, the drives, and the other information required.  
*Diskcmp* compares the disks and logs the number of sectors compared, and the number of equal and different sectors.  

Actual results:  
No anomalies detected.  

Analysis:  
Expected results achieved.  

<table>
<thead>
<tr>
<th>Case Dcm-04</th>
<th></th>
</tr>
</thead>
</table>
| **Case summary:** | Compare IDE hard disk drives with the same size, filled in diskwipe-style with different fill values and with only a few equal sectors at known addresses.  
Also, test whether *diskcmp* creates a log file with the alternate name specified in the -log_name option. |
| **Tester name:** | Serban |
| **Test date:** | Wed Apr 13 11:08:22 2005 |
| **PC:** | McMillan |
| **Disks:** | Source: IDE, /dev/hdb, external label “82”, model WDC WD800BB-00CAA1, serial # WD-WCA8E5277475.  
Destination: IDE, /dev/hdd, external label “80”, model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999. |
| **Execute:** | Initialize source disk with 0x82, destination disk with 0x80. To make sure that *diskwipe* uses the same geometry when computing the C/H/S address to be written in the sector headers, use the -heads option with the value 255:  
diskwipe dcm-04 mcmillan serban /dev/hdb 82 -heads 255 -noask -new_log -src |
```
diskwipe dcm-04 mcmillan serban /dev/hdd 80 -heads 255 -noask -new_log -dst

Fill a few sectors of the destination disk with the same value as the one used for the source, using the same geometry (255):

diskchg dcm-04 mcmillan serban /dev/hdd -fill 1000000 1000000 255 82
diskchg dcm-04 mcmillan serban /dev/hdd -fill 2000000 2000000 255 82
diskchg dcm-04 mcmillan serban /dev/hdd -fill 3000000 3000000 255 82

Run `diskcmp` to compare the disks:

diskcmp dcm-04 mcmillan serban /dev/hdb 82 /dev/hdd 80 -log_name diskcmplog.txt

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/diskcmp/dcm-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td>Diskcmplog.txt:</td>
</tr>
<tr>
<td></td>
<td>diskcmp @(#) diskcmp.c Linux Version 1.2 Created 02/18/05 at 08:49:40 compiled on Mar 25 2005 at 19:16:47 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: diskcmp dcm-04 mcmillan serban /dev/hdb 82 /dev/hdd 80 -log_name diskcmplog.txt TEST dcm-04 HOST mcmillan OPERATOR serban Comment: Alternate log file name, a few sectors equal</td>
</tr>
</tbody>
</table>

Source Drive /dev/hdb
09728/254/63 (max cyl/hd values)
09729/255/63 (number of cyl/hd)
156301488 total number of sectors
IDE disk: Model (WDC WD800BB-00CAA1) serial # (WD-WCA8E5277475)

Destination Drive /dev/hdd
23988/015/63 (max cyl/hd values)
23989/016/63 (number of cyl/hd)
156301488 total number of sectors
IDE disk: Model (WDC WD800BB-00CAA1) serial # (WD-WCA8E5174999)```
Sectors compared: 156301488
Sectors match:   3
Sectors differ:  156301485
Bytes differ:  75962521710
Diffs range 0-999999, 1000001-1999999, 2000001-2999999, 3000001-156301487
0 source read errors, 0 destination read errors
run start Wed Apr 13 11:08:22 2005
run finish Wed Apr 13 13:54:19 2005
elapsed time 2:45:57
Normal exit

Expected results: Diskcmp creates a new log file with the alternate name “diskcmplog.txt”. It prompts the user for a comment. It logs the comment, the drives, and the other information required. Diskcmp compares the disks and logs the number of sectors compared, and the number and range of equal and different sectors.

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Dcm-05

Case summary: Test whether diskcmp displays its usage mode when invoked with the -h option.

Tester name: Serban
Test date: Wed Apr 13 11:08:22 2005
PC: McMillan
Disks: None.
Execute: Run diskcmp without arguments, with incorrect arguments, with the -h option alone on the command line, with correct arguments and the -h option on the command line, and capture the standard output into a file:

diskcmp > output.txt
diskcmp dcm-05 mcmillan serban /dev/hdb 82 /dev/hdd -logname >> output.txt
diskcmp -h >> output.txt
diskcmp dcm-05 mcmillan serban /dev/hdb 82 /dev/hdd 80 -log_name diskcmplog.txt -h >> output.txt

Log files location: Test-archive/diskcmp/dcm-05
Log file highlights: output.txt:
Usage: diskcmp test-case host operator src-drive src-fill
dst-drive dst-fill [-options]
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-comment &quot; ... &quot;</code></td>
<td>Descriptive comment</td>
</tr>
<tr>
<td><code>-new_log</code></td>
<td>Start a new log file (default is append to old log file)</td>
</tr>
<tr>
<td><code>-log_name &lt;name&gt;</code></td>
<td>Use different log file (default is cmplog.txt)</td>
</tr>
<tr>
<td><code>-h</code></td>
<td>Print this option list</td>
</tr>
</tbody>
</table>

**Expected results:** *Diskcmp* displays its usage mode in each case.

**Actual results:** No anomalies detected.

**Analysis:** Expected results achieved.
### 3.2.7 Corrupt Test Results Summary

<table>
<thead>
<tr>
<th>Case Cor-01</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary:</td>
<td>Test whether <code>corrupt</code> alters the first byte of an image file, creates a log file with the default name, logs a comment entered on the command line, logs the program execution, the original and altered byte value, and all other information required by the specifications. Use the <code>-comment</code> option with a one-word comment.</td>
</tr>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Thu Apr 14 06:53:45 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>Media: IDE, /dev/hdd, external label “80”, model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999. Mounted on directory /media.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <code>corrupt</code>:</td>
</tr>
<tr>
<td></td>
<td>corrupt cor-01 mcmillan serban /media/imgfile 0 41 -comment AlterFirstByte</td>
</tr>
<tr>
<td></td>
<td>Compare the altered file “imgfile” with the reference copy:</td>
</tr>
<tr>
<td></td>
<td>cmp -l /media/imgfile /media/copy-of-imgfile &gt; diff.txt</td>
</tr>
<tr>
<td></td>
<td>Note: The byte offset in <code>cmp</code>’s output starts with 1. The byte values are listed in octal.</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/corrupt/cor-01/</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td><strong>Corlog.txt:</strong></td>
</tr>
<tr>
<td></td>
<td>corrupt @(#) corrupt.c Linux Version 1.2 Created 02/18/05 at 08:49:40</td>
</tr>
<tr>
<td></td>
<td>compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12</td>
</tr>
<tr>
<td></td>
<td>support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td></td>
<td>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24</td>
</tr>
<tr>
<td></td>
<td>cmd: corrupt cor-01 mcmillan serban /media/imgfile 0 41 -comment AlterFirstByte</td>
</tr>
<tr>
<td></td>
<td>TEST cor-01 HOST mcmillan OPERATOR serban</td>
</tr>
<tr>
<td></td>
<td>Comment: AlterFirstByte</td>
</tr>
<tr>
<td></td>
<td>Change byte 0 of file /media/imgfile from 0x30 to 0x41</td>
</tr>
<tr>
<td></td>
<td>run start Thu Apr 14 06:53:45 2005</td>
</tr>
</tbody>
</table>
run finish Thu Apr 14 06:53:45 2005
elapsed time 0:0:0
Normal exit

**Diff.txt:**

```
1 101 60
```

### Expected results:

*corrupt* creates a new log file with the default name “corlog.txt”. Alters the first byte of the image file as requested. Logs the comment, the original and new values of the altered byte, and the other information required.

### Actual results:
No anomalies detected.

### Analysis:
Expected results achieved.

---

### Case Cor-02

#### Case summary:
Test whether *corrupt* alters the last byte of an image file, appends the log records to an existing log file with the default name, logs a multi-word comment entered on the command line, logs the program execution, the original and altered byte value, and all other information required by the specifications.

#### Tester name:
Serban

#### Test date:
Thu Apr 14 07:59:25 2005

#### PC:
McMillan

#### Disks:
Media: IDE, /dev/hdd, external label “80”, model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999. Mounted on directory /media.

#### Execute:
Run *corrupt*:

```
corrupt cor-02 mcmillan serban /media/imgfile
17247252479 41 -comment ”Alter last byte, append log”
```

Compare the altered file “imgfile” with the reference copy:

```
cmp -l /media/imgfile /media/copy-of-imgfile > diff.txt
```

Note: The byte offset in cmp’s output starts with 1. The byte values are listed in octal.

#### Log files location:
Test-archive/corrupt/cor-02

#### Log file highlights:

*Corlog.txt:*

```
-----Log of the previous test case, followed by-----
corrupt @(#) corrupt.c Linux Version 1.2 Created
```
### Test Case: Corrupt

**Expected results:**
Corrupt appends the log records to the log file with the default name “corlog.txt” created in the previous test case.
Alters the last byte of the image file as requested. Logs the comment, the original and new values of the altered byte, and the other information required.

**Actual results:**
No anomalies detected.

**Analysis:**
Expected results achieved.

---

**Case Cor-03**

**Case summary:**
Test whether corrupt alters an arbitrary byte of an image file, creates a new log file with the default name although a log file with the same name already exists by using the -new_log option, prompts the user to enter a comment, logs the comment, the program execution, the original and the new values of the altered byte, and other information required by the specifications.

**Tester name:**
Serban

**Test date:**
Thu Apr 14 14:55:21 2005

**PC:**
McMillan

**Disks:**
Media: IDE, /dev/hdd, external label “80”, model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999. Mounted on directory /media.
Execute:

Run `corrupt`:

```
corrupt cor-03 mcmillan serban /media/imgfile
10000000000 41 -new_log
```

Compare the altered file “imgfile” with the reference copy:

```
cmp -l /media/imgfile /media/copy-of-imgfile > diff.txt
```

Note: The byte offset in cmp’s output starts with 1. The byte values are listed in octal.

Log files location: Test-archive/corrupt/cor-03

Log file highlights:

<table>
<thead>
<tr>
<th>Corlog.txt:</th>
</tr>
</thead>
<tbody>
<tr>
<td>corrupt @(#) corrupt.c Linux Version 1.2 Created 02/18/05 at 08:49:40</td>
</tr>
<tr>
<td>compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)</td>
</tr>
<tr>
<td>@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12</td>
</tr>
<tr>
<td>support lib compiled Mar 25 2005 at 19:16:46</td>
</tr>
<tr>
<td>@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24</td>
</tr>
<tr>
<td>cmd: corrupt cor-03 mcmillan serban /media/imgfile</td>
</tr>
<tr>
<td>10000000000 41 -new_log</td>
</tr>
<tr>
<td>TEST cor-03 HOST mcmillan OPERATOR serban</td>
</tr>
<tr>
<td>Comment: Alter a byte somewhere in the middle, new log file</td>
</tr>
<tr>
<td>Change byte 10000000000 of file /media/imgfile from 0x30 to 0x41</td>
</tr>
<tr>
<td>run start Thu Apr 14 14:55:21 2005</td>
</tr>
<tr>
<td>run finish Thu Apr 14 14:55:42 2005</td>
</tr>
<tr>
<td>elapsed time 0:0:21</td>
</tr>
<tr>
<td>Normal exit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diff.txt:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 101 60</td>
</tr>
<tr>
<td>10000000001 101 60</td>
</tr>
<tr>
<td>17247252480 101 314</td>
</tr>
</tbody>
</table>

Expected results: `corrupt` creates a new log file with the default name “corlog.txt”. Alters the specified byte of the image file as requested. Logs the comment, the original and new values of the altered byte, and the other information required.

Actual results: No anomalies detected.

Analysis: Expected results achieved.
## Case Cor-04

### Case summary:
Test whether `corrupt` alters an arbitrary byte of an image file, creates a log file with an alternate name as specified by the `-log_name` option, prompts the user to enter a comment, logs the comment, the program execution, the original and the new values of the altered byte, and other information required by the specifications.

### Tester name:
Serban

### Test date:
Thu Apr 14 15:49:30 2005

### PC:
McMillan

### Disks:
Media: IDE, /dev/hdd, external label “80”, model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999. Mounted on directory /media.

### Execute:
Run `corrupt`:
```
corrupt cor-04 mcmillan serban /media/imgfile 10000000001 41 -log_name corruptlog.txt
```

Compare the altered file “imgfile” with the reference copy:
```
cmp -l /media/imgfile /media/copy-of-imgfile > diff.txt
```

### Log files location:
Test-archive/corrupt/cor-04

### Log file highlights:

**Corruptlog.txt:**
```
corrupt @(#) corrupt.c Linux Version 1.2 Created 02/18/05 at 08:49:40
compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: corrupt cor-04 mcmillan serban /media/imgfile 10000000001 41 -log_name corruptlog.txt
TEST cor-04 HOST mcmillan OPERATOR serban
Comment: Alternate log file name

Change byte 10000000001 of file /media/imgfile from 0x31 to 0x41
run start Thu Apr 14 15:49:30 2005
run finish Thu Apr 14 15:49:39 2005
elapsed time 0:0:9
Normal exit
```

### Expected results:
`corrupt` creates a new log file with the alternate name
"corruptlog.txt". Alters the specified byte of the image file as requested. Logs the comment, the original and new values of the altered byte, and the other information required.

<table>
<thead>
<tr>
<th>Actual results:</th>
<th>No anomalies detected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

### Case Cor-05

**Case summary:** Test whether `corrupt` detects an invalid byte offset within the image file, i.e., the specified offset is larger than the image file size.

**Tester name:** Serban

**Test date:** Thu Apr 14 15:51:00 2005

**PC:** McMillan

**Disks:** Media: IDE, /dev/hdd, external label "80", model WDC WD800BB-00CAA1, serial # WD-WCA8E5174999. Mounted on directory /media.

**Execute:** Run `corrupt`:

```
corrupt cor-05 mcmillan serban /media/imgfile 17247252480 41 -new_log
```

**Log files location:** Test-archive/corrupt/cor-05

**Log file highlights:** *Corrupt* does not create the log file, but displays an error message on the standard output:

```
corrupt: Read failed
```

**Expected results:** *corrupt* displays an error message.

**Actual results:** No anomalies detected.

**Analysis:** Expected results achieved.

### Case Cor-06

**Case summary:** Test whether `corrupt` displays its usage mode when invoked with the `-h` option.

**Tester name:** Serban

**Test date:** Thu Apr 14 15:53:00 2005

**PC:** McMillan

**Disks:** None.

**Execute:** Run `corrupt` without arguments, with incorrect arguments, with the `-h` option alone on the command line, with correct arguments plus the `-h` option. Capture the standard output into a file:
<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/corrupt/cor-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td><strong>Output.txt:</strong></td>
</tr>
<tr>
<td></td>
<td>corrupt compiled at 19:16:46 on Mar 25 2005</td>
</tr>
<tr>
<td></td>
<td>Usage: corrupt test-case host operator file_name offset hex_value [-options]</td>
</tr>
<tr>
<td></td>
<td>-comment &quot;...&quot; Give comment on command line</td>
</tr>
<tr>
<td></td>
<td>-new_log Start a new log file (default is append to old log file)</td>
</tr>
<tr>
<td></td>
<td>-log_name &lt;name&gt; Use different log file (default is corlog.txt)</td>
</tr>
<tr>
<td></td>
<td>-h Print this option list</td>
</tr>
<tr>
<td>Expected results:</td>
<td><strong>corrupt</strong> displays its usage mode in each case.</td>
</tr>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
### 3.2.8 Logsetup Test Results Summary

<table>
<thead>
<tr>
<th>Case Lgs-01</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case Summary:</strong></td>
</tr>
<tr>
<td><strong>Tester Name:</strong></td>
</tr>
<tr>
<td><strong>Test Date:</strong></td>
</tr>
<tr>
<td><strong>PC:</strong></td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Log Files location:</strong></td>
</tr>
<tr>
<td><strong>Log File Highlights:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Expected Results:</strong></td>
</tr>
<tr>
<td><strong>Actual Results:</strong></td>
</tr>
<tr>
<td><strong>Analysis:</strong></td>
</tr>
</tbody>
</table>
### 3.2.9 Logcase Test Results Summary

<table>
<thead>
<tr>
<th>Case Lgc-01</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case Summary:</strong></td>
<td>Test whether <em>logcase</em> logs the information provided by the user on its command line accompanied by the time and date of its execution.</td>
</tr>
<tr>
<td><strong>Tester Name:</strong></td>
<td>serban</td>
</tr>
<tr>
<td><strong>Test Date:</strong></td>
<td>Mon Apr 4 18:05:36 2005</td>
</tr>
<tr>
<td><strong>PC:</strong></td>
<td>McMillan</td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
<td>Run <em>logcase</em>:</td>
</tr>
<tr>
<td></td>
<td><code>logcase pcm-01 McMillan serban CC:/dev/sda 7F:/dev/hdb none</code></td>
</tr>
<tr>
<td><strong>Log Files location:</strong></td>
<td>Test-archive\Logcase\Lgc-01\</td>
</tr>
<tr>
<td><strong>Log File Highlights:</strong></td>
<td><em>Case.txt</em>:</td>
</tr>
<tr>
<td></td>
<td>Case: pcm-01</td>
</tr>
<tr>
<td></td>
<td>Host: McMillan</td>
</tr>
<tr>
<td></td>
<td>Operator: serban</td>
</tr>
<tr>
<td></td>
<td>Disks: src(CC:/dev/sda) dst (7F:/dev/hdb) other (none)</td>
</tr>
<tr>
<td></td>
<td>Date: Mon Apr 4 18:05:36 2005</td>
</tr>
<tr>
<td><strong>Expected Results:</strong></td>
<td><em>Logcase</em> creates a new log file &quot;case.txt&quot;. It records the arguments provided by the user on the command line, accompanied by the date and time of its execution.</td>
</tr>
<tr>
<td><strong>Actual Results:</strong></td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td><strong>Analysis:</strong></td>
<td>Expected results were achieved.</td>
</tr>
</tbody>
</table>
### 3.2.10 Adjcmp Test Results Summary

<table>
<thead>
<tr>
<th>Case Acm-01</th>
</tr>
</thead>
</table>
| **Case summary:** | Test whether `adjcmp`:
| | - creates a log file with the default name when no log file exists;
| | - logs a one-word comment entered on the command line in the –comment option;
| | - logs the source and destination drives;
| | - logs the program execution;
| | - logs the partition tables of each drive;
| | - detects the disk layouts and displays the location of each disk chunk when using the –layout option, when the source primary and logical partitions correspond naturally to destination partitions with the same type, size, and contents; the destination disk has an additional logical NTFS partition. All partitions are separated by unallocated space. |

| **Tester name:** | Serban |
| **Test date:** | Mon Mar 28 15:51:58 2005 |
| **PC:** | McMillan |
| **Disks:** | Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770. 
Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |

| **Execute:** | Run `adjcmp`:
| | adjcmp acm-01 mcmillan serban /dev/hdb 7F /dev/sda CC -layout -comment Layout |

| **Log files location:** | Test-archive/adjcmp/acm-01/ |
| **Log file highlights:** | **cmpalog.txt:** |

adjcmp @(#) adjcmp.c Linux Version 1.4 Created 03/25/05 at 19:16:24
compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: adjcmp acm-01 mcmillan serban /dev/hdb 7F /dev/sda CC -layout -comment Layout
Comment: Layout
Src drive /dev/hdb dst drive /dev/sda
Src fill 0x7F dst fill 0xCC
Source Disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
Source disk partition table
  Start LBA Length   Start C/H/S End C/H/S boot
Partition type
P 0000000063 006152832 0000/001/01 0382/254/63 0B
Fat32
P 006185025 004096575 0385/000/01 0639/254/63 83
Linux
X 010313730 000867510 0642/000/01 0695/254/63 05
extended
S 0000000063 000417627 0642/001/01 0667/254/63 06
Fat16
x 000449820 000417690 0670/000/01 0695/254/63 05
extended
S 0000000063 000417627 0670/001/01 0695/254/63 0B
Fat32
S 0000000000 00000000 0000/000/00 0000/000/00 00
empty entry
P 0000000000 0000000000 0000/000/00 0000/000/00 00
empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Source disk layout: 04866/255/63 78177792 total sectors on disk
  Start LBA   End LBA   Length   Size: MB (binary)
  0 B        0  62  63         0.03MB  0.03BMB
  1 P        63 6152894 6152832 3150.25MB
  3004.31BMB
  2 U        6152895 6185024 32130 16.45MB
  15.69BMB
  3 P        6185025 10281599 4096575 2097.45MB
  2000.28BMB
  4 U        10281600 10313729 32130 16.45MB
  15.69BMB
  5 b        10313730 10313792 63 0.03MB  0.03BMB
<table>
<thead>
<tr>
<th>Destination Disk Drive</th>
<th>/dev/sda</th>
</tr>
</thead>
<tbody>
<tr>
<td>04461/254/63 (max cyl/hd values)</td>
<td></td>
</tr>
<tr>
<td>04462/255/63 (number of cyl/hd)</td>
<td></td>
</tr>
<tr>
<td>71687370 total number of sectors</td>
<td></td>
</tr>
<tr>
<td>Non-IDE disk</td>
<td></td>
</tr>
<tr>
<td>Model (ST336705LC ) serial #</td>
<td></td>
</tr>
<tr>
<td>(3DE03HL300008110CEHF)</td>
<td></td>
</tr>
</tbody>
</table>

**Destination disk partition table**

<table>
<thead>
<tr>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 000000063 006152832 0000/001/01 0382/254/63</td>
<td>0B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P 006185025 004096575 0385/000/01 0639/254/63</td>
<td>83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linux</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X 010313730 001317330 0642/000/01 0723/254/63</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>extended</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 000000063 000417627 0642/001/01 0667/254/63</td>
<td>06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 000449820 000417690 0670/000/01 0695/254/63</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>extended</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 000000063 000417627 0670/001/01 0695/254/63</td>
<td>0B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 000899640 000417690 0698/000/01 0723/254/63</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>extended</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 000000063 000417627 0698/001/01 0723/254/63</td>
<td>07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTFS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 000000000 000000000 0000/000/00 0000/0000/0000/00</td>
<td>00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>empty entry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P 000000000 000000000 0000/000/00 0000/0000/0000/00</td>
<td>00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>empty entry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P primary partition (1-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S secondary (sub) partition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X primary extended partition (1-4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x secondary extended partition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Destination disk layout:** 04462/255/63 71687370 total sectors on disk

<table>
<thead>
<tr>
<th>Start LBA</th>
<th>End LBA</th>
<th>Length</th>
<th>Size: MB (binary)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>B</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>1</td>
<td>P</td>
<td>63</td>
<td>6152894</td>
</tr>
<tr>
<td>3004.31BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>U</td>
<td>6152895</td>
<td>6185024</td>
</tr>
<tr>
<td>15.69BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>P</td>
<td>6185025</td>
<td>10281599</td>
</tr>
<tr>
<td>2000.28BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>U</td>
<td>10281600</td>
<td>10313729</td>
</tr>
<tr>
<td>15.69BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>b</td>
<td>10313730</td>
<td>10313792</td>
</tr>
<tr>
<td>6</td>
<td>P</td>
<td>10313793</td>
<td>10731419</td>
</tr>
<tr>
<td>203.92BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>U</td>
<td>10731420</td>
<td>10763549</td>
</tr>
<tr>
<td>15.69BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>b</td>
<td>10763550</td>
<td>10763612</td>
</tr>
<tr>
<td>9</td>
<td>P</td>
<td>10763613</td>
<td>11181239</td>
</tr>
<tr>
<td>203.92BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>U</td>
<td>11181240</td>
<td>11213369</td>
</tr>
<tr>
<td>15.69BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>b</td>
<td>11213370</td>
<td>11213432</td>
</tr>
<tr>
<td>12</td>
<td>P</td>
<td>11213433</td>
<td>11631059</td>
</tr>
<tr>
<td>203.92BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>U</td>
<td>11631060</td>
<td>71687369</td>
</tr>
<tr>
<td>29324.37BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

run start Mon Mar 28 15:51:58 2005
run finish Mon Mar 28 15:51:58 2005
elapsed time 0:0:0
Normal exit

Expected results: 
*Adjcmp creates a new log file “cmpalog.txt”. It logs the comment, the drives, the program execution, the partition tables of each drive, the location, size, type of each disk chunk. It logs all other information required (compilation date, libraries, etc.)*

Actual results: 
No anomalies detected.

Analysis: 
Expected results achieved.

**Case Acm-02**

**Case summary:**
Test whether *adjcmp*:
- creates a new log file with the default name when a log file with the same name already exists, by using the -new_log option;
- logs a multi-word comment entered on the command line in the -comment option;
- automatically assigns source chunks to destination chunks.
in a natural assignment order;
- compares the assigned chunks and records the correct results;
- categorizes surplus destination chunks, when the first source chunks have the same type, size, and contents as the assigned destination chunks, and the destination drive has surplus chunks.

<table>
<thead>
<tr>
<th>Tester name:</th>
<th>serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Mon Mar 28 15:54:14 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <code>adjcmp</code>: adjcmp acm-02 mcmillan serban /dev/hdb 7F /dev/sda CC - new_log -comment &quot;Compare automatically assigned partitions&quot;</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/adjcmp/acm-02</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td><code>Cmpalog.txt</code>: adjcmp @(#) adjcmp.c Linux Version 1.4 Created 03/25/05 at 19:16:24 compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12 support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24 cmd: adjcmp acm-02 mcmillan serban /dev/hdb 7F /dev/sda CC -new_log -comment Compare automatically assigned partitions TEST acm-02 HOST mcmillan OPERATOR serban Comment: Compare automatically assigned partitions Src drive /dev/hdb dst drive /dev/sda Src fill 0x7F dst fill 0xCC Source Disk Drive /dev/hdb 04865/254/63 (max cyl/hd values) 04866/255/63 (number of cyl/hd) 78177792 total number of sectors IDE disk: Model (MAXTOR 6L040J2) serial # (662201137770) Source disk partition table Start LBA Length Start C/H/S End C/H/S boot Partition</td>
</tr>
<tr>
<td>Type</td>
<td>Start LBA</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>P</td>
<td>0 0152832</td>
</tr>
<tr>
<td>Fat32</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>006152850</td>
</tr>
<tr>
<td>Linux</td>
<td></td>
</tr>
<tr>
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<td>010313730</td>
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<tr>
<td>extended</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>000000063</td>
</tr>
<tr>
<td>Fat16</td>
<td></td>
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<tr>
<td>x</td>
<td>000449820</td>
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<td>Fat32</td>
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</tr>
<tr>
<td>S</td>
<td>000000000</td>
</tr>
<tr>
<td>empty entry</td>
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<tr>
<td>P</td>
<td>000000000</td>
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<tr>
<td>empty entry</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>primary partition (1-4)</td>
</tr>
<tr>
<td>S</td>
<td>secondary (sub) partition</td>
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<tr>
<td>X</td>
<td>primary extended partition (1-4)</td>
</tr>
<tr>
<td>x</td>
<td>secondary extended partition</td>
</tr>
</tbody>
</table>

Source disk layout: 04866/255/63 78177792 total sectors on disk

Start LBA | End LBA | Length | Size: MB (binary)
--- | --- | --- | ---
0 0 | 62 63 | 0.03MB | 0.03BMB
1 P | 63 6152894 | 6152832 | 3150.25MB
3004.31BMB
2 U | 6152895 6185024 | 32130 | 16.45MB 15.69BMB
3 P | 6185025 10281599 | 4096575 | 2097.45MB
2000.28BMB
4 U | 10281600 10313729 | 32130 | 16.45MB 15.69BMB
5 b | 10313730 10313792 | 63 | 0.03MB 0.03BMB
6 P | 10313793 10731419 | 417627 | 213.83MB
203.92BMB
7 U | 10731420 10763549 | 32130 | 16.45MB 15.69BMB
8 b | 10763550 10763612 | 63 | 0.03MB 0.03BMB
9 P | 10763613 11181239 | 417627 | 213.83MB
203.92BMB
10 U | 11181240 78177791 | 66996552 | 34302.23MB
32713.16BMB

Destination Disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk  
Model (ST336705LC   ) serial #  
(3DE03HL300008110CEHF)  
Destination disk partition table  
<table>
<thead>
<tr>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot Partition type</th>
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</thead>
<tbody>
<tr>
<td>P 000000063</td>
<td>006152832</td>
<td>0000/001/01</td>
<td>0382/254/63</td>
<td>0B Fat32</td>
</tr>
<tr>
<td>P 006185025</td>
<td>004096575</td>
<td>0385/000/01</td>
<td>0639/254/63</td>
<td>83 Linux</td>
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<tr>
<td>X 010313730</td>
<td>001317330</td>
<td>0642/000/01</td>
<td>0723/254/63</td>
<td>05 extended</td>
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<tr>
<td>S 000000063</td>
<td>004176276</td>
<td>0642/001/01</td>
<td>0667/254/63</td>
<td>06 Fat16</td>
</tr>
<tr>
<td>x 000449820</td>
<td>000417690</td>
<td>0670/000/01</td>
<td>0695/254/63</td>
<td>05 extended</td>
</tr>
<tr>
<td>S 000000063</td>
<td>004176276</td>
<td>0670/001/01</td>
<td>0695/254/63</td>
<td>0B Fat32</td>
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<tr>
<td>x 000899640</td>
<td>000417690</td>
<td>0698/000/01</td>
<td>0723/254/63</td>
<td>05 extended</td>
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<td>0723/254/63</td>
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<tr>
<td>S secondary (sub) partition</td>
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</tr>
<tr>
<td>X primary extended partition (1-4)</td>
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<tr>
<td>x secondary extended partition</td>
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Destination disk layout: 04462/255/63 71687370 total sectors on disk  
<table>
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<tr>
<th>Start LBA</th>
<th>End LBA</th>
<th>Length</th>
<th>Size: MB (binary)</th>
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<tbody>
<tr>
<td>0 B 0 62 63</td>
<td>0.03MB 0.03MB</td>
<td>3004.31BMB</td>
<td></td>
</tr>
<tr>
<td>1 P 63 6152894 6152832</td>
<td>3150.25MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 U 6152895 6185024</td>
<td>32130 16.45MB 15.69BMB</td>
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<td></td>
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<td>3 P 6185025 10281599</td>
<td>4096575 2097.45MB</td>
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<td>2000.28BMB</td>
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<td>4 U 10281600 10313729</td>
<td>32130 16.45MB</td>
<td></td>
<td></td>
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<tr>
<td>15.69BMB</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5 b 10313730 10313792</td>
<td>63 0.03MB 0.03BMB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 P 10313793 10731419</td>
<td>417627 213.83MB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>203.92BMB</td>
<td></td>
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<td></td>
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<tr>
<td>7 U 10731420 10763549</td>
<td>32130 16.45MB</td>
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<td>15.69BMB</td>
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<td>Start</td>
<td>End</td>
<td>Length</td>
<td>Start</td>
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<td>11213370</td>
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<tr>
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<td>12</td>
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<td>U</td>
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<td>71687369</td>
</tr>
<tr>
<td>13</td>
<td>U</td>
<td>60056310</td>
<td>30748.83MB</td>
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</table>

Unmatched destination regions

<table>
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<tr>
<th>Start</th>
<th>End</th>
<th>Length</th>
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</thead>
<tbody>
<tr>
<td>11</td>
<td>b</td>
<td>11213433</td>
</tr>
<tr>
<td>12</td>
<td>P</td>
<td>11213433</td>
</tr>
<tr>
<td>13</td>
<td>U</td>
<td>11631060</td>
</tr>
</tbody>
</table>

Chunk class codes: b/B Boot track, P partition, U unallocated

Compare region 0 of 10: src(0.63,B) dst (0,63,B)
Src base 0 Dst base 0
Sectors compared: 63
Sectors match: 62
<table>
<thead>
<tr>
<th>Sectors differ:</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bytes differ:</td>
<td>4</td>
</tr>
<tr>
<td>Diffs range:</td>
<td>0</td>
</tr>
</tbody>
</table>

Compare region 1 of 10: src(63,6152832,P) dst (63,6152832,P)
Src base 63 Dst base 63
Sectors compared: 6152832
Sectors match: 6152832
Sectors differ: 0
Bytes differ: 0
Diffs range: 

Compare region 2 of 10: src(6152895,32130,U) dst (6152895,32130,U)
Src base 6152895 Dst base 6152895
Sectors compared: 32130
Sectors match: 32126
Sectors differ: 4
Bytes differ: 26
Diffs range: 2, 24, 26, 16386

Compare region 3 of 10: src(6185025,4096575,P) dst (6185025,4096575,P)
Src base 6185025 Dst base 6185025
Sectors compared: 4096575
Sectors match: 4096575
Sectors differ: 0
Bytes differ: 0
Diffs range: 

Compare region 4 of 10: src(10281600,32130,U) dst (10281600,32130,U)
Src base 10281600 Dst base 10281600
Sectors compared: 32130
Sectors match: 503
Sectors differ: 31627
Bytes differ: 219650
Diffs range: 63, 504-32129

Compare region 5 of 10: src(10313730,63,b) dst
<table>
<thead>
<tr>
<th>Region</th>
<th>Source Base</th>
<th>Destination Base</th>
<th>Sectors Compared</th>
<th>Sectors Match</th>
<th>Sectors Differ</th>
<th>Bytes Differ</th>
<th>Diffs Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>10313730</td>
<td>10313730</td>
<td>63</td>
<td>1</td>
<td>62</td>
<td>372</td>
<td>1-62</td>
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<tr>
<td>7</td>
<td>10731420</td>
<td>10731420</td>
<td>32130</td>
<td>6460</td>
<td>25670</td>
<td>159584</td>
<td>1-63, 69, 6524-32129</td>
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<td>10763550</td>
<td>63</td>
<td>0</td>
<td>63</td>
<td>414</td>
<td>0-62</td>
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<tr>
<td>9</td>
<td>10763613</td>
<td>10763613</td>
<td>417627</td>
<td>417627</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Diffs range:

Compare region 10 of 10: src(11181240,66996552,U) dst (11181240,32130,U)
Src base 11181240 Dst base 11181240
Sectors compared:    32130
Sectors match:       32095
Sectors differ:      35
Bytes differ:        17397
Diffs range: 0, 63, 79, 95-126
Source (66996552) has 66964422 more sectors than destination (32130)

Examine unmatched regions of destination

Examine: 11b 11213370--11213432  63
scanning 63 unmatched sectors: 11213370--11213433
Zero fill: 0
Src Byte fill (7F): 62
Dst Byte fill (CC): 0
Other fill (00): 0
Other no fill: 1
Zero fill range:
Src fill range: 11213371-11213432
Dst fill range:
Other fill range:
Other not filled range: 11213370

Examine: 12P 11213433--11631059  417627
scanning 417627 unmatched sectors: 11213433--11631060
Zero fill: 324
Src Byte fill (7F): 416430
Dst Byte fill (CC): 0
Other fill (FF): 240
Other no fill: 633
Zero fill range: 11394313-11394377, 11394380-11394428, 11394432-11394479, 11426443-11426507, 11426510-11426558, 11426562-11426609
Src fill range: 11213434-11213464, 11213497-11222590, 11222599-11222705, 11222714-11255358, 11255367-11255473, 11255482-11288126, 11288135-11288241, 11288250-
<table>
<thead>
<tr>
<th>Start Address</th>
<th>End Address</th>
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<tbody>
<tr>
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<td>11422278</td>
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<td>+ 208231</td>
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Dst fill range:
Other fill range: 11222591-11222598, 11222706-1122713, 11255359-11255366, 11255474-11255481, 11288127-11288134, 11288242-11288249, 11320895-11320902, 11321010-11321017, 11353663-11353670, 11353778-11353785, 11386431-11386438, 11386546-11386553, 11390141-11390147, 11390156-11390163, 11394430, 11419199-11419206, 11419314-11419321, 11422271-11422277, 11422286-11422293, 11426561, 11426610-11426874, 11598929, 11631059

Examine: 13U 11631060--71687369 60056310
scanning 60056310 unmatched sectors: 11631060--71687370
Zero fill: 807699
Src Byte fill (7F): 59100886
Dst Byte fill (CC): 1
Other fill (FF): 2063
Other no fill: 145661
Zero fill range: 12369476-12369478, 12787811-12787834, 12787836-12791048, 12791050-12794262, 12794264, 12996656-12996679, 12996681-12998286, 12998288-12999894, 13188791-13188793,
<table>
<thead>
<tr>
<th>Start Address</th>
<th>End Address</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>13205501-13205524</td>
<td>13208738</td>
<td>126</td>
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<tr>
<td>20482946-20482969</td>
<td>20482971-20492962</td>
<td>771017</td>
</tr>
<tr>
<td>24579453-24579555</td>
<td>24580063</td>
<td>145613</td>
</tr>
<tr>
<td>20492946-20502971</td>
<td>20502971-20510718</td>
<td>58788496</td>
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**Summary**

<table>
<thead>
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<th>Category</th>
<th>Value</th>
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<td>Diff count</td>
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<tr>
<td>Total diffs</td>
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<td>Partitions</td>
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<tr>
<td>Total diffs</td>
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<tr>
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<td>-------------</td>
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<td>Total src sectors</td>
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<td>Partition excess</td>
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<td>Total dst sectors</td>
<td>71687370</td>
</tr>
</tbody>
</table>

run start Mon Mar 28 15:54:14 2005
run finish Mon Mar 28 16:31:22 2005
elapsed time 0:37:8
Normal exit

Expected results: *Adjcmp* creates a new log file “cmpalog.txt”, although a file with the same name already exists. It logs the comment, the drives, the program execution, the partition tables of each drive, the location, size, type of each disk chunk. It assigns the source chunks to the destination chunks in a natural way, compares them and logs the correct results, then categorizes the sectors of the surplus destination chunks. It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected.

Analysis: Expected results achieved.

---

### Case Acm-03

**Case summary:**
Test whether *adjcmp*:
- appends the log records to an existing log file with the default name;
- prompts the user for a comment and logs the comment;
- lets the user assign the disk chunks by using the –assign option;
- compares the assigned chunks and records the correct results;
- categorizes surplus destination chunks.

**Tester name:** Serban

**Test date:** Mon Mar 28 16:58:57 2005

**PC:** McMillan

**Disks:**
Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL3000081010CEHF.

**Execute:** Run *adjcmp*:
adjcmp acm-03 mcmillan serban /dev/hdb 7F /dev/sda CC –
assign

Log files location: Test-archive/adjcmp/acm-03

Log file highlights:

Cmpalog.txt:

-----Log records of the previous test case, followed by-----

adjcmp @(#) adjcmp.c Linux Version 1.4 Created 03/25/05 at 19:16:24
compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: adjcmp acm-03 mccmillan serban /dev/hdb 7F /dev/sda
CC -assign
TEST acm-03 HOST mccmillan OPERATOR serban
Comment: Compare manually assigned regions

Src drive /dev/hdb dst drive /dev/sda
Src fill 0x7F dst fill 0xCC
Source Disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
Source disk partition table

Start LBA Length Start C/H/S End C/H/S boot Partition type
P 000000063 006152832 0000/001/01 0382/254/63 0B
Fat32
P 006185025 004096575 0385/000/01 0639/254/63 83
Linux
X 010313730 000867510 0642/000/01 0695/254/63 05
extended
S 000000063 000417627 0642/001/01 0667/254/63 06
Fat16
x 0000449820 000417690 0670/000/01 0695/254/63 05
extended
S 000000063 000417627 0670/001/01 0695/254/63 0B
Fat32
S 000000000 000000000 0000/000/00 0000/000/00 00
empty entry
P 000000000 000000000 0000/000/00 0000/000/00 00
empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Source disk layout: 04866/255/63 78177792 total sectors on disk

<table>
<thead>
<tr>
<th>Start LBA</th>
<th>End LBA</th>
<th>Length</th>
<th>Size: MB (binary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B 0 62 63</td>
<td>0.03MB</td>
<td>0.03MB</td>
<td></td>
</tr>
<tr>
<td>1 P 63</td>
<td>6152894 6152832</td>
<td>3150.25MB</td>
<td></td>
</tr>
<tr>
<td>3004.31MB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 U 6152895 6185024</td>
<td>32130</td>
<td>16.45MB</td>
<td>15.69MB</td>
</tr>
<tr>
<td>3 P 6185025 10281599</td>
<td>4096575</td>
<td>2097.45MB</td>
<td></td>
</tr>
<tr>
<td>2000.28MB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 U 10281600 10313729</td>
<td>32130</td>
<td>16.45MB</td>
<td></td>
</tr>
<tr>
<td>15.69MB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 b 10313730 10313792</td>
<td>63</td>
<td>0.03MB</td>
<td>0.03MB</td>
</tr>
<tr>
<td>6 P 10313793 10731419</td>
<td>417627</td>
<td>213.83MB</td>
<td></td>
</tr>
<tr>
<td>203.92MB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 U 10731420 10763549</td>
<td>32130</td>
<td>16.45MB</td>
<td></td>
</tr>
<tr>
<td>15.69MB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 b 10763550 10763612</td>
<td>63</td>
<td>0.03MB</td>
<td>0.03MB</td>
</tr>
<tr>
<td>9 P 10763613 11181239</td>
<td>417627</td>
<td>213.83MB</td>
<td></td>
</tr>
<tr>
<td>203.92MB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 U 11181240 78177791</td>
<td>66996552</td>
<td>34302.23MB</td>
<td></td>
</tr>
<tr>
<td>32713.16MB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Destination Disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL30000810CEHF)
Destination disk partition table

<table>
<thead>
<tr>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot Partition type</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 000000063 006152832 0000/001/01</td>
<td>0382/254/63</td>
<td>0B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat32</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P 006185025 004096575 0385/000/01</td>
<td>0639/254/63</td>
<td>83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linux</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X 010313730 001317330 0642/000/01</td>
<td>0723/254/63</td>
<td>05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>extended</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S 000000063 00417627 0642/001/01</td>
<td>0667/254/63</td>
<td>06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 000449820 000417690 0670/000/01</td>
<td>0695/254/63</td>
<td>05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>extended</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Start LBA</td>
<td>End LBA</td>
<td>Length</td>
<td>Size: MB (binary)</td>
</tr>
<tr>
<td>-----</td>
<td>-----------</td>
<td>---------</td>
<td>--------</td>
<td>-------------------</td>
</tr>
<tr>
<td>0 B</td>
<td>0</td>
<td>62</td>
<td>63</td>
<td>0.03MB 0.03BMB</td>
</tr>
<tr>
<td>1 P</td>
<td>63</td>
<td>6152894</td>
<td>6152832</td>
<td>3150.25MB</td>
</tr>
<tr>
<td>2 U</td>
<td>6152895</td>
<td>6185024</td>
<td>32130</td>
<td>15.69MB</td>
</tr>
<tr>
<td>3 P</td>
<td>6185025</td>
<td>10281599</td>
<td>4096575</td>
<td>2097.45MB</td>
</tr>
<tr>
<td>4 U</td>
<td>10281600</td>
<td>10313729</td>
<td>32130</td>
<td>15.69MB</td>
</tr>
<tr>
<td>5 b</td>
<td>10313730</td>
<td>10313792</td>
<td>63</td>
<td>0.03MB 0.03BMB</td>
</tr>
<tr>
<td>6 P</td>
<td>10313793</td>
<td>10731419</td>
<td>417627</td>
<td>213.83MB</td>
</tr>
<tr>
<td>7 U</td>
<td>10731420</td>
<td>10763549</td>
<td>32130</td>
<td>15.69MB</td>
</tr>
<tr>
<td>8 b</td>
<td>10763550</td>
<td>10763612</td>
<td>63</td>
<td>0.03MB 0.03BMB</td>
</tr>
<tr>
<td>9 P</td>
<td>10763613</td>
<td>11181239</td>
<td>417627</td>
<td>213.83MB</td>
</tr>
<tr>
<td>10 U</td>
<td>11181240</td>
<td>11213369</td>
<td>32130</td>
<td>15.69MB</td>
</tr>
<tr>
<td>11 b</td>
<td>11213370</td>
<td>11213432</td>
<td>63</td>
<td>0.03MB 0.03BMB</td>
</tr>
<tr>
<td>12 P</td>
<td>11213433</td>
<td>11631059</td>
<td>417627</td>
<td>213.83MB</td>
</tr>
<tr>
<td>13 U</td>
<td>11631060</td>
<td>71687369</td>
<td>7168789</td>
<td>203.92BMB</td>
</tr>
</tbody>
</table>

Matching regions

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B</td>
<td>62</td>
<td>63</td>
</tr>
<tr>
<td>1 P</td>
<td>63</td>
<td>6152894</td>
</tr>
<tr>
<td></td>
<td>6152832</td>
<td></td>
</tr>
<tr>
<td>2 U</td>
<td>6152895</td>
<td>32130</td>
</tr>
</tbody>
</table>

Page 138 of 193
Unmatched destination regions

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>11b</td>
<td>11213370</td>
<td>63</td>
</tr>
<tr>
<td>12P</td>
<td>11213433</td>
<td>6152832</td>
</tr>
<tr>
<td>13U</td>
<td>11631060</td>
<td>71687369</td>
</tr>
</tbody>
</table>

Chunk class codes: b/B Boot track, P partition, U unallocated

==---------------------------------------------------------------==
Compare region 0 of 10: src(0,63,B) dst (0.63,B)
Src base 0 Dst base 0
Sectors compared: 63
Sectors match: 62
Sectors differ: 1
Bytes differ: 4
Diffs range: 0

==---------------------------------------------------------------==
Compare region 1 of 10: src(63,6152832,P) dst (63,6152832,P)
Src base 63 Dst base 63
Sectors compared: 6152832
Sectors match: 6152832
Sectors differ: 0
Bytes differ: 0
Diffs range:

==---------------------------------------------------------------==
Compare region 2 of 10: src(6152895,32130,U) dst
(6152895.32130,U)
Src base 6152895 Dst base 6152895
Sectors compared: 32130
Sectors match: 32126
Sectors differ: 4
Bytes differ: 26
Diffs range: 2, 24, 26, 16386

Compare region 3 of 10: src(6185025,4096575,P) dst (6185025,4096575,P)
Src base 6185025 Dst base 6185025
Sectors compared: 4096575
Sectors match: 4096575
Sectors differ: 0
Bytes differ: 0
Diffs range:

Compare region 4 of 10: src(10281600,32130,U) dst (10281600,32130,U)
Src base 10281600 Dst base 10281600
Sectors compared: 32130
Sectors match: 503
Sectors differ: 31627
Bytes differ: 219650
Diffs range: 63, 504-32129

Compare region 5 of 10: src(10313730,63,b) dst (10763550,63,b)
Src base 10313730 Dst base 10763550
Sectors compared: 63
Sectors match: 0
Sectors differ: 63
Bytes differ: 442
Diffs range: 0-62

Compare region 6 of 10: src(10313793,417627,P) dst (10763613,417627,P)
Src base 10313793 Dst base 10763613
Sectors compared: 417627
Sectors match: 431
Sectors differ: 417196
Bytes differ: 9288360
Diffs range: 0-7, 32, 205, 441-417626

Compare region 7 of 10: src(10731420,32130,U) dst (11181240,32130,U)
Src base 10731420 Dst base 11181240
Sectors compared: 32130
Sectors match: 0
Sectors differ: 32130
Bytes differ: 3480062
Diffs range: 0-32129

Compare region 8 of 10: src(10763550,63,b) dst (10313730,63,b)
Src base 10763550 Dst base 10313730
Sectors compared: 63
Sectors match: 0
Sectors differ: 63
Bytes differ: 374
Diffs range: 0-62

Compare region 9 of 10: src(10763613,417627,P) dst (10313793,417627,P)
Src base 10763613 Dst base 10313793
Sectors compared: 417627
Sectors match: 431
Sectors differ: 417196
Bytes differ: 9288360
Diffs range: 0-7, 32, 205, 441-417626

Compare region 10 of 10: src(11181240,66996552,U) dst (10731420,32130,U)
Src base 11181240 Dst base 10731420
Sectors compared: 32130
Sectors match: 0
Sectors differ: 32130
Bytes differ: 3507700
Diffs range: 0-32129
Source (66996552) has 66964422 more sectors than destination (32130)

Examine unmatched regions of destination
Examine: 11b 11213370--11213432 63
scanning 63 unmatched sectors: 11213370--11213433
Zero fill: 0
Src Byte fill (7F): 62
Dst Byte fill (CC): 0
Other fill (00): 0
Other no fill: 1
Zero fill range:
Src fill range: 11213371-11213432
Dst fill range:
Other fill range:
Other not filled range: 11213370

Examine: 12P 11213433--11631059 417627
scanning 417627 unmatched sectors: 11213433--11631060
Zero fill: 324
Src Byte fill (7F): 416430
Dst Byte fill (CC): 0
Other fill (FF): 240
Other no fill: 633
Zero fill range: 11394313-11394377, 11394380-11394428, 11394432-11394479, 11426443-11426507, 11426510-11426558, 11426562-11426609
Src fill range: 11213434-11213464, 11213497-11222590, 11222599-11222705, 11222714-11255358, 11255367-11255473, 11255482-11288126, 11288135-11288241, 11288250-11288294, 11320903-11321009, 11321018-11353662, 11353671-11353777, 11353786-11386430, 11386439-11386545, 11386554-11390115, 11390148-11390155, 11390164-11394307, 11394745-11419198, 11419207-11419313, 11419322-11422245, 11422278-11422285... + 208231 more
Dst fill range:
Other fill range: 11222591-11222598, 11222706-11222713, 11255359-11255366, 11255474-11255481, 11288127-11288134, 11288242-11288249, 11320895-11320902, 11321010-11321017.
Examine: 13U 11631060--71687369 60056310
scanning 60056310 unmatched sectors: 11631060--71687370
Zero fill: 807699
Src Byte fill (7F): 59100886
Dst Byte fill (CC): 1
Other fill (FF): 2063
Other no fill: 145661
Zero fill range: 12369476-12369478, 12787811-12787834, 12787836-12791048, 12791050-12794262, 12794264, 12996656-12996679, 12996681-12998286, 12998288-12999894, 13188791-13188793, 13205501-13205524, 13205526-13208738, 13208740-13211953, 20482946-20482969, 20482971-20492962, 20492964-20502971, 24579453, 24579549, 24579553, 24579555-24580063, 24580065... + 771017 more
Src fill range: 11631060-11648574, 11648583-11648689, 11648698-11681342, 11681351-11681457, 11681466-11714110, 11714119-11714225, 11714234-11746878, 11746887-11746993, 11747002-11779646, 11779655-11779761, 11779770-11812414, 11812423-11812529, 11812538-11845182, 11845191-11845297, 11845306-11877950, 11877959-11878065, 11878074-
11910718, 11910727-11910833, 11910842-11943486, 11943495-11943601... + 58788496 more
Dst fill range: 71687369
Other fill range: 11648575-11648582, 11648690-11648697, 11681343-11681350, 11681458-11681465, 11714111-11714118, 11714226-11714233, 11746879-11746886, 11746994-11747001, 11779647-11779654, 11779762-11779769, 11812415-11812422, 11812530-11812537, 11845183-11845190, 11845298-11845305, 11877951-11877958, 11878066-11878073, 11910719-11910726, 11910834-11910841, 11943487-11943494, 11943602-11943609... + 1903 more
Other not filled range: 12289724, 12369475, 12787740, 12787803-12787810, 12787835, 12791049, 12996585, 12996648-12996655, 12996680, 13188790, 13205430, 13205493-13205500, 13205525, 13208739, 20482875, 20482938-20482945, 20482970, 20492963, 24579452... + 145613 more

Summary
Boot tracks 3  189 diffs  127
Partitions 4  11084661 diffs  834392
Unallocated 4  128520 diffs  95891
Total src sectors  11213370
Partition excess  0 zero  0 non-zero  0
Disk excess  60474000 zero  808023 non-zero
59665977
Total dst sectors  71687370

run start Mon Mar 28 16:58:57 2005
run finish Mon Mar 28 17:39:23 2005
elapsed time 0:40:26
Normal exit

Expected results:  Adjcmp appends the log records to the existing log file "cmpalog.txt" created in the previous test case. It prompts the user for a comment. It logs the comment, the drives, the program execution, the partition tables of each drive, the location, size, type of each disk chunk. It prompts the user
for chunk assignment, compares them and logs the correct results, then categorizes the sectors of the surplus destination chunks. It logs all other information required (compilation date, libraries, etc.)

<table>
<thead>
<tr>
<th>Actual results:</th>
<th>No anomalies detected.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>

**Case Acm-04**

**Case summary:** Test whether *adjcmp* allows the user to specify an alternate log file name by using the `-log_name` option. Test how *adjcmp* automatically assigns surplus source chunks. Use for comparison the same partitions as before, but reverse the source and destination disks, so that the source disk has surplus chunks. Also, modify a few sectors in some or all partitions, so that they do not compare equal.

<table>
<thead>
<tr>
<th>Tester name:</th>
<th>serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Tue Mar 29 08:51:14 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
</tbody>
</table>

**Disks:**
Source: SCSI, /dev/sda, external label "CC", model ST336705LC, serial # 3DE03HL300008110CEHF.

Destination: IDE, /dev/hdb, external label "7F", model MAXTOR 6L040J2, serial # 662201137770.

**Execute:** Run *adjcmp*.

adjcmp acm-04 mcmillan serban /dev/sda CC /dev/hdb 7F -log_name adjcmplog.txt

**Log files location:** Test-archive/adjcmp/acm-04

**Log file highlights:** *Adjcmplog.txt:*

adjcmp @(#) adjcmp.c Linux Version 1.4 Created 03/25/05 at 19:16:24
compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7) @(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46 @(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: adjcmp acm-04 mcmillan serban /dev/sda CC /dev/hdb 7F -log_name adjcmplog.txt
TEST acm-04 HOST mcmillan OPERATOR serban

**Comment:** Compare partitions with a few differences, see how an excess chunk is handled.
Src drive /dev/sda dst drive /dev/hdb
Src fill 0xCC dst fill 0x7F
Source Disk Drive /dev/sda
04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)
71687370 total number of sectors
Non-IDE disk
Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)
Source disk partition table
  Start LBA Length  Start C/H/S End C/H/S boot Partition
type
  P 000000063 006152832 0000/001/01 0382/254/63 0B
  Fat32
  P 006185025 004096575 0385/000/01 0639/254/63 83
  Linux
  X 010313730 001317330 0642/000/01 0723/254/63 05
  extended
  S 000000063 000417627 0642/001/01 0667/254/63 06
  Fat16
  x 000449820 000417690 0670/000/01 0695/254/63 05
  extended
  S 000000063 000417627 0670/001/01 0695/254/63 0B
  Fat32
  x 000899640 000417690 0698/000/01 0723/254/63 05
  extended
  S 000000063 000417627 0698/001/01 0723/254/63 07
  NTFS
  S 000000000 000000000 0000/000/00 0000/000/00 00
  empty entry
  P 000000000 000000000 0000/000/00 0000/000/00 00
  empty entry
  P primary partition (1-4)
  S secondary (sub) partition
  X primary extended partition (1-4)
  x secondary extended partition
Source disk layout: 04462/255/63 71687370 total sectors
on disk
  Start LBA End LBA Length Size: MB (binary)
  0 B 0 62 63 0.03MB 0.03BMB
  1 P 63 6152894 6152832 3150.25MB
  3004.31BMB
  2 U 6152895 6185024 32130 16.45MB 15.69BMB
  3 P 6185025 10281599 4096575 2097.45MB
  2000.28BMB
  4 U 10281600 10313729 32130 16.45MB

Page 146 of 193
Destination Disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
Destination disk partition table
<table>
<thead>
<tr>
<th>Start LBA</th>
<th>Length</th>
<th>Start C/H/S</th>
<th>End C/H/S</th>
<th>boot Partition type</th>
</tr>
</thead>
<tbody>
<tr>
<td>000000063</td>
<td>006152832</td>
<td>0000/001/01</td>
<td>0382/254/63</td>
<td>P Fat32</td>
</tr>
<tr>
<td>006185025</td>
<td>004096575</td>
<td>0385/000/01</td>
<td>0639/254/63</td>
<td>P Linux</td>
</tr>
<tr>
<td>010313730</td>
<td>000867510</td>
<td>0642/000/01</td>
<td>0695/254/63</td>
<td>X extended</td>
</tr>
<tr>
<td>000000063</td>
<td>000417627</td>
<td>0642/001/01</td>
<td>0667/254/63</td>
<td>S Fat16 extended</td>
</tr>
<tr>
<td>000449820</td>
<td>000417690</td>
<td>0670/000/01</td>
<td>0695/254/63</td>
<td>S Fat32 empty</td>
</tr>
<tr>
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<td>000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>P primary partition</td>
</tr>
<tr>
<td>000000000</td>
<td>000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>S secondary (sub) partition</td>
</tr>
<tr>
<td>000000000</td>
<td>000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>X primary extended partition</td>
</tr>
<tr>
<td>000000000</td>
<td>000000000</td>
<td>0000/000/00</td>
<td>0000/000/00</td>
<td>x secondary extended partition</td>
</tr>
</tbody>
</table>

Destination disk layout: 04866/255/63 78177792 total
<table>
<thead>
<tr>
<th>Start LBA</th>
<th>End LBA</th>
<th>Length</th>
<th>Size: MB (binary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B</td>
<td>0</td>
<td>62</td>
<td>0.03MB 0.03BMB</td>
</tr>
<tr>
<td>1 P</td>
<td>63</td>
<td>6152894</td>
<td>6152832 3150.25MB</td>
</tr>
<tr>
<td>3004.31BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 U</td>
<td>6152895</td>
<td>6185024</td>
<td>32130 16.45MB 15.69BMB</td>
</tr>
<tr>
<td>3 P</td>
<td>6185025</td>
<td>10281599</td>
<td>4096575 2097.45MB</td>
</tr>
<tr>
<td>2000.28BMB</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4 U</td>
<td>10281600</td>
<td>10313729</td>
<td>32130 16.45MB 15.69BMB</td>
</tr>
<tr>
<td>5 b</td>
<td>10313730</td>
<td>10313792</td>
<td>63 0.03MB 0.03BMB</td>
</tr>
<tr>
<td>6 P</td>
<td>10313793</td>
<td>10731419</td>
<td>417627 213.83MB</td>
</tr>
<tr>
<td>203.92BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 U</td>
<td>10731420</td>
<td>10763549</td>
<td>32130 16.45MB 15.69BMB</td>
</tr>
<tr>
<td>8 b</td>
<td>10763550</td>
<td>10763612</td>
<td>63 0.03MB 0.03BMB</td>
</tr>
<tr>
<td>9 P</td>
<td>10763613</td>
<td>11181239</td>
<td>417627 213.83MB</td>
</tr>
<tr>
<td>203.92BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 U</td>
<td>11181240</td>
<td>78177791</td>
<td>66996552 34302.23MB</td>
</tr>
<tr>
<td>32713.16BMB</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Matching regions

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>1 P</td>
<td>63</td>
<td>6152894</td>
</tr>
<tr>
<td></td>
<td></td>
<td>=&gt; 0 B</td>
</tr>
<tr>
<td>2 U</td>
<td>6152895</td>
<td>6185024</td>
</tr>
<tr>
<td>3 P</td>
<td>6185025</td>
<td>10281599</td>
</tr>
<tr>
<td>4 U</td>
<td>10281600</td>
<td>10313729</td>
</tr>
<tr>
<td>5 b</td>
<td>10313730</td>
<td>10313792</td>
</tr>
<tr>
<td>6 P</td>
<td>10313793</td>
<td>10731419</td>
</tr>
<tr>
<td>7 U</td>
<td>10731420</td>
<td>10763549</td>
</tr>
<tr>
<td>8 b</td>
<td>10763550</td>
<td>10763612</td>
</tr>
<tr>
<td>9 P</td>
<td>10763613</td>
<td>11181239</td>
</tr>
<tr>
<td>10 U</td>
<td>11181240</td>
<td>78177791</td>
</tr>
<tr>
<td>11 b</td>
<td>11213370</td>
<td>11213432</td>
</tr>
<tr>
<td>12 P</td>
<td>11213433</td>
<td>11631059</td>
</tr>
<tr>
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<td></td>
<td>=&gt; 0 B</td>
</tr>
</tbody>
</table>

Page 148 of 193
Unmatched destination regions

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chunk class codes: b/B Boot track, P partition, U unallocated

Compare region 0 of 10: src(0,63,B) dst (0,63,B)
Src base 0 Dst base 0
Sectors compared: 63
Sectors match: 62
Sectors differ: 1
Bytes differ: 4
Diffs range: 0

Compare region 1 of 10: src(63,6152832,P) dst (63,6152832,P)
Src base 63 Dst base 63
Sectors compared: 6152832
Sectors match: 6152831
Sectors differ: 1
Bytes differ: 1
Diffs range: 9937

Compare region 2 of 10: src(6152895,32130,U) dst (6152895,32130,U)
Src base 6152895 Dst base 6152895
Sectors compared: 32130
Sectors match: 32126
Sectors differ: 4
Bytes differ: 26
Diffs range: 2, 24, 26, 16386

Compare region 3 of 10: src(6185025,4096575,P) dst (6185025,4096575,P)
Src base 6185025 Dst base 6185025
Sectors compared: 4096575
Sectors match: 4096574
Sectors differ: 1
Bytes differ: 486
Diffs range: 1975
<table>
<thead>
<tr>
<th>Region</th>
<th>Source</th>
<th>Destination</th>
<th>Sectors Compared</th>
<th>Sectors Match</th>
<th>Sectors Differ</th>
<th>Bytes Differ</th>
<th>Diffs Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>src(10281600,32130,U)</td>
<td>dst(10281600,32130,U)</td>
<td>32130</td>
<td>503</td>
<td>31627</td>
<td>219650</td>
<td>63, 504-32129</td>
</tr>
<tr>
<td>5</td>
<td>src(10313730,63,b)</td>
<td>dst(10313730,63,b)</td>
<td>63</td>
<td>1</td>
<td>62</td>
<td>372</td>
<td>1-62</td>
</tr>
<tr>
<td>6</td>
<td>src(10313793,417627,P)</td>
<td>dst(10313793,417627,P)</td>
<td>417627</td>
<td>417626</td>
<td>1</td>
<td>511</td>
<td>1207</td>
</tr>
<tr>
<td>7</td>
<td>src(10731420,32130,U)</td>
<td>dst(10731420,32130,U)</td>
<td>32130</td>
<td>6460</td>
<td>25670</td>
<td>159584</td>
<td>1-63, 69, 6524-32129</td>
</tr>
<tr>
<td>8</td>
<td>src(10763550,63,b)</td>
<td>dst(10763550,63,b)</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sectors match:</td>
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</tr>
<tr>
<td>---------------</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sectors differ:</td>
<td>63</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bytes differ:</td>
<td>414</td>
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<td></td>
</tr>
<tr>
<td>Diffs range:</td>
<td>0-62</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compare region 9 of 10: src(10763613,417627,P) dst (10763613,417627,P)
Src base 10763613 Dst base 10763613
Sectors compared: 417627
Sectors match: 417626
Sectors differ: 1
Bytes differ: 1
Diffs range: 16387

Compare region 10 of 10: src(11181240,32130,U) dst (11181240,66996552,U)
Src base 11181240 Dst base 11181240
Sectors compared: 32130
Sectors match: 32095
Sectors differ: 35
Bytes differ: 17397
Diffs range: 0, 63, 79, 95-126
Source (32130) has 66964422 fewer sectors than destination (66996552)
scanning 66964422 unmatched sectors: 11213370-78177792
Zero fill: 787837
Src Byte fill (CC): 0
Dst Byte fill (7F): 66028348
Other fill (FF): 2287
Other no fill: 145950
Zero fill range: 11297923-11297987, 11297990-11298038, 11298042-11298089, 12369476-12369478, 12787811-12787834, 12787836-12791048, 12791050-12794262, 12794264, 12996656-12996679, 12996681-12998286, 12998288-12999894, 13188791-13188793, 13205501-13205524, 13205526-13208738, 13208740-13211953, 24579453, 24579549, 24579553, 24579555-24580063, 24580065...+771017 more
Src fill range:
Dst fill range: 11213370-11222590, 11222599-11222705,
11222714-11255358, 11255367-11255473, 11255482-11288126, 11288135-11288241, 11288250-11293725, 11293759-11293766, 11293774-11297917, 11298040, 11320895-11320902, 11321010-11321017, 11353663-11353670, 11353778-11353785, 11386431-11386438, 11386554-11386561, 11419314-11419321, 11451975-11452081, 11452090-11452097, 11452098-11452105, 11452106-11452113, 11452114-11452121, 11484735-11484742


Other not filled range: 11293726-11293750, 11297918-11297922, 11297988-11297989, 11298039, 11298041, 11298090-11298354, 11502539, 12289724, 12369475, 12787740, 12787803-12787810, 12787835, 12791049, 12996585, 12996648-12996655, 12996680, 12998287, 13188790, 13205430, 13205493-13205500, 145616 more

Summary
Boot tracks 3 189 diffs 126
Partitions 4 11084661 diffs 4
Unallocated 4 128520 diffs 57336
Total src sectors 11213370
Partition excess 0 zero 0 non-zero 0
Disk excess 66964422 zero 787837 non-zero 0
66176585
Total dst sectors 78177792
### Expected results:

`Adjcmp` creates a log file with the alternate name “adjcmplg.txt”. It prompts the user for a comment. It logs the comment, the drives, the program execution, the partition tables of each drive, the location, size, type of each disk chunk. It automatically assigns the source chunks to the destination chunks in a natural way, compares them and logs the correct results. It logs all other information required (compilation date, libraries, etc.) The documentation does not specify how the surplus source chunks should be assigned, if they would at all.

### Actual results:

No anomalies detected. The surplus source chunks are all assigned to the destination chunk 0, which happens to be the boot track of the first partition.

### Analysis:

Expected results achieved.

### Case Acm-05

#### Case summary:

Test how the user can assign source chunks of type U (unallocated) when there are no destination chunks of that type. Also, test whether `adjcmp` correctly (i.e., according to the specifications) compares large primary and logical partitions in both cases src size < dst size and src size > dst size.

#### Tester name:

serban

#### Test date:

Wed Mar 30 10:24:15 2005

#### PC:

McMillan

#### Disks:

Source: IDE, /dev/hdb, external label “7F”, model MAXTOR 6L040J2, serial # 662201137770.

Destination: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL30008110CEHF.

#### Execute:

Run `adjcmp`:

```
adjcmp acm-05 mcmillan serban /dev/hdb 7F /dev/sda CC -assign -new_log
```

When prompted, assign unallocated source chunks to destination chunk 0. Assign each source P chunk to the destination chunk of the same type (i.e., primary FAT32 to primary FAT32, etc.)

#### Log files location:

Test-archive/adjcmp/acm-05
Log file highlights:

Captured log file highlights:

Cmpalog.txt:
adjcmp @(#) adjcmp.c Linux Version 1.4 Created 03/25/05 at 19:16:24
compiled on Mar 25 2005 at 19:16:46 using gcc Version 3.3.3 20040412 (Red Hat Linux 3.3.3-7)
@(#) zbios.c Linux Version 1.5 Created 03/21/05 at 09:09:12
support lib compiled Mar 25 2005 at 19:16:46
@(#) zbios.h Linux Version 1.1 Created 02/10/05 at 10:53:24
cmd: adjcmp acm-05 mcmillan serban /dev/hdb 7F /dev/sda
CC -assign -new_log
TEST acm-05 HOST mcmillan OPERATOR serban
Comment: Assigning U to null

Src drive /dev/hdb dst drive /dev/sda
Src fill 0x7F dst fill 0xCC
Source Disk Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
Source disk partition table
Start LBA Length Start C/H/S End C/H/S boot Partition type
P 0000000063 020482812 0000/001/01 1023/254/63 0C
Fat32X
P 020515005 018442620 1023/000/01 1023/254/63 83
Linux
X 038989755 020531070 1023/000/01 1023/254/63 0F
extended
S 0000000063 002056257 1023/001/01 1023/254/63 06
Fat16
x 002088450 018442620 1023/000/01 1023/254/63 05
extended
S 0000000063 018442557 1023/001/01 1023/254/63 0B
Fat32
S 0000000000 000000000 0000/00/00 0000/00/00 00
empty entry
P 0000000000 000000000 0000/00/00 0000/00/00 00
empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Source disk layout: 04866/255/63 78177792 total sectors on disk

<table>
<thead>
<tr>
<th>Start LBA</th>
<th>End LBA</th>
<th>Length</th>
<th>Size: MB (binary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B</td>
<td>62</td>
<td>63</td>
<td>0.03MB 0.03BMB</td>
</tr>
<tr>
<td>1 P</td>
<td>20482874</td>
<td>20482812</td>
<td>10487.20MB</td>
</tr>
<tr>
<td>2 U</td>
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<td>20515004</td>
<td>16.45MB</td>
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<td>20515005</td>
<td>38957624</td>
<td>18442620 9442.62MB</td>
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<tr>
<td>4 U</td>
<td>38957625</td>
<td>38989754</td>
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<td>1052.80MB</td>
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<tr>
<td>7 U</td>
<td>41046075</td>
<td>41078204</td>
<td>16.45MB</td>
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<td>59520824</td>
<td>9552.37MB</td>
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<tr>
<td>10 U</td>
<td>59520825</td>
<td>78177791</td>
<td>9552.37MB</td>
</tr>
</tbody>
</table>

Destination Disk Drive /dev/sda

04461/254/63 (max cyl/hd values)
04462/255/63 (number of cyl/hd)

71687370 total number of sectors

Non-IDE disk

Model (ST336705LC ) serial #
(3DE03HL300008110CEHF)

Destination disk partition table

<table>
<thead>
<tr>
<th>Start LBA Length</th>
<th>Start C/H/S End C/H/S</th>
<th>boot Partition type</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 0000000063 018442557 0000/001/01 1023/254/63</td>
<td>0C Fat32X</td>
<td></td>
</tr>
<tr>
<td>P 018442620 020482875 1023/000/01 1023/254/63 83</td>
<td></td>
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</tr>
<tr>
<td>Linux X 038925495 020482875 1023/000/01 1023/254/63 0F</td>
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</tr>
<tr>
<td>extended S 000000063 004096512 1023/001/01 1023/254/63 06</td>
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<tr>
<td>Fat16 x 004096575 016386300 1023/000/01 1023/254/63 05</td>
<td></td>
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</tr>
<tr>
<td>extended S 000000063 016386237 1023/001/01 1023/254/63 0B</td>
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<td></td>
</tr>
<tr>
<td>Fat32 S 000000000 000000000 0000/000/00 0000/000/00 00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>empty entry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
P 000000000 000000000 0000/000/00 0000/000/00 00
empty entry
P primary partition (1-4)
S secondary (sub) partition
X primary extended partition (1-4)
x secondary extended partition
Destination disk layout: 04462/255/63 71687370 total sectors on disk

<table>
<thead>
<tr>
<th>Start LBA</th>
<th>End LBA</th>
<th>Length</th>
<th>Size (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B</td>
<td>0</td>
<td>62</td>
<td>0.03MB</td>
</tr>
<tr>
<td>1 P</td>
<td>63</td>
<td>18442619</td>
<td>18442557</td>
</tr>
<tr>
<td>2 P</td>
<td>18442620</td>
<td>38925494</td>
<td>20482875</td>
</tr>
<tr>
<td>3 b</td>
<td>38925495</td>
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</tr>
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<td>43022133</td>
<td>59408369</td>
<td>16386237</td>
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<td>59408370</td>
<td>71687369</td>
<td>12279000</td>
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<td>8001.09BMB</td>
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<td></td>
</tr>
<tr>
<td>9005.15BMB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Matching regions

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Length</th>
<th>Start</th>
<th>End</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 B</td>
<td>62</td>
<td>63</td>
<td>0 B</td>
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</tr>
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<td>18442557</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 U</td>
<td>20482875</td>
<td>20515004</td>
<td>32130</td>
<td>0 B</td>
<td>62</td>
</tr>
<tr>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 P</td>
<td>20515005</td>
<td>38957624</td>
<td>18442620</td>
<td>2 P</td>
<td>18442620</td>
</tr>
<tr>
<td>38925494</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>4 U</td>
<td>38957625</td>
<td>38989754</td>
<td>32130</td>
<td>0 B</td>
<td>62</td>
</tr>
<tr>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 b</td>
<td>38989755</td>
<td>38989817</td>
<td>63</td>
<td>3 b</td>
<td>38925495</td>
</tr>
<tr>
<td>38925557</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>6 P</td>
<td>38989818</td>
<td>41046074</td>
<td>2056257</td>
<td>4 P</td>
<td>38925558</td>
</tr>
<tr>
<td>43022069</td>
<td>4096512</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 U</td>
<td>41046075</td>
<td>41078204</td>
<td>32130</td>
<td>0 B</td>
<td>62</td>
</tr>
<tr>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 b</td>
<td>41078205</td>
<td>41078267</td>
<td>63</td>
<td>5 b</td>
<td>43022070</td>
</tr>
<tr>
<td>43022132</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 P</td>
<td>41078268</td>
<td>59520824</td>
<td>18442557</td>
<td>6 P</td>
<td>43022133</td>
</tr>
<tr>
<td>59408369</td>
<td>16386237</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 U</td>
<td>59520825</td>
<td>78177791</td>
<td>18656967</td>
<td>7 U</td>
<td>59408370</td>
</tr>
<tr>
<td>71687369</td>
<td>12279000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unmatched destination regions
### Chunk class codes:
- b/B: Boot track
- P: Partition
- U: Unallocated

---

**Compare region 0 of 10:**
- **Src base:** 0
- **Dst base:** 0
- **Sectors compared:** 63
- **Sectors match:** 62
- **Sectors differ:** 1
- **Bytes differ:** 15
- **Diffs range:** 0

---

**Compare region 1 of 10:**
- **Src base:** 63
- **Dst base:** 63
- **Sectors compared:** 18442557
- **Sectors match:** 18442556
- **Sectors differ:** 1
- **Bytes differ:** 16
- **Diffs range:** 20018

Source (20482812) has 2040255 more sectors than destination (18442557)

---

**Compare region 2 of 10:**
- **Src base:** 20482875
- **Dst base:** 0
- **Sectors compared:** 63
- **Sectors match:** 0
- **Sectors differ:** 63
- **Bytes differ:** 32177
- **Diffs range:** 0-62

Source (32130) has 32067 more sectors than destination (63)

---

**Compare region 3 of 10:**
- **Src base:** 20515005
- **Dst base:** 18442620
- **Sectors compared:** 18442620
- **Sectors match:** 18442620
- **Sectors differ:** 0
- **Bytes differ:** 0
- **Diffs range:**
Source (18442620) has 2040255 fewer sectors than destination (20482875) scanning 2040255 unmatched sectors: 36885240--38925495
Zero fill: 128110
Src Byte fill (7F): 1889617
Dst Byte fill (CC): 0
Other fill (FF): 250
Other no fill: 22278
Zero fill range: 36891007, 36891087, 36891089, 36891092-36891603, 36900221, 36900317, 36900320-36900831, 36907391, 36907471, 36907473, 36907476-36907987, 36916605, 36916701, 36916704-36917215, 36923775, 36923855, 36923857, 36923860-36924371, 36932989, 36933085...+125535 more
Dst fill range:
Other fill range: 36891091, 36900319, 36907475, 36916703, 36923859, 36933087, 36940243, 36949471, 36956627, 36965855, 36973011, 36982239, 36989395, 36998623, 37005779, 37015007, 37022163, 37031391, 37038547, 37047775...+230 more
Other not filled range: 36891006, 36891008-36891086, 36891088, 36891090, 36900220, 36900222-36900316, 36900318, 36907390, 36907392-36907470, 36907472, 36907474, 36916604, 36916606-36916700, 36916702, 36923774, 36923776-36923854, 36923856, 36923858, 36932988, 36932990-36933084...+
21742 more

===================================
Compare region 4 of 10: src(38957625,32130,U) dst
(0,63,B)
Src base 38957625 Dst base 0
Sectors compared: 63
Sectors match: 0
Sectors differ: 63
Bytes differ: 31112
Diffs range: 0-62
Source (32130) has 32067 more sectors than destination (63)

===================================
Compare region 5 of 10: src(38989755,63,b) dst
(38925495,63,b)
Src base 38989755 Dst base 38925495
Sectors compared: 63
Sectors match: 0
Sectors differ: 63
Bytes differ: 320
Diffs range: 0-62

===================================
Compare region 6 of 10: src(38989818,2056257,P) dst
(38925558,4096512,P)
Src base 38989818 Dst base 38925558
Sectors compared: 2056257
Sectors match: 2056257
Sectors differ: 0
Bytes differ: 0
Diffs range:
Source (2056257) has 2040255 fewer sectors than
destination (4096512)
scanning 2040255 unmatched sectors: 40981815--43022070
Zero fill: 63736
Src Byte fill (7F): 1964367
Dst Byte fill (CC): 0
Other fill (FF): 124
Other no fill: 12028
Zero fill range: 40996221, 40996317, 40996320-40996831,
41012605, 41012701, 41012704-41013215, 41028989,
41029085, 41029088-41029599, 41045373, 41045469, 41045472-
41045983,
41061757, 41061853, 41061856-41062367, 41078141, 41078237, 41078240-41078751, 41094525, 41094621... + 60650 more
Dst fill range:
Other fill range: 40996319, 41012703, 41029087, 41045471, 41061855, 41078239, 41094623, 41111007, 411127391, 41143775, 41160159, 41176543, 41192927, 41209311, 41225695, 41242079, 41258463, 41274847, 41291231, 41291744-41307515... + 104 more
Other not filled range: 40996220, 40996222-40996316, 40996318, 41012604, 41012606-41012700, 41012702, 41028988, 41029080-41029084, 41029086, 41045372, 41045374-41045468, 41045470, 41061756, 41061758-41061852, 41061854, 41078140, 41078142-41078236, 41078238, 41094524, 41094526-41094620... + 11350 more

Compare region 7 of 10: src(41046075,32130,U) dst (0,63,B)
Src base 41046075 Dst base 0
Sectors compared: 63
Sectors match: 0
Sectors differ: 63
Bytes differ: 31025
Diffs range: 0-62
Source (32130) has 32067 more sectors than destination (63)
<table>
<thead>
<tr>
<th>Region</th>
<th>Source (1078205)</th>
<th>Destination (43022070)</th>
<th>Sectors Compared</th>
<th>Sectors Match</th>
<th>Sectors Differ</th>
<th>Bytes Differ</th>
<th>Diffs Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>41078205</td>
<td>43022070</td>
<td>63</td>
<td>0</td>
<td>63</td>
<td>31688</td>
<td>0-62</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Source (1078268)</th>
<th>Destination (43022133)</th>
<th>Sectors Compared</th>
<th>Sectors Match</th>
<th>Sectors Differ</th>
<th>Bytes Differ</th>
<th>Diffs Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>41078268</td>
<td>43022133</td>
<td>16386237</td>
<td>16386237</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Source (18442557) has 2056320 more sectors than destination (16386237)

<table>
<thead>
<tr>
<th>Region</th>
<th>Source (59520825)</th>
<th>Destination (59408370)</th>
<th>Sectors Compared</th>
<th>Sectors Match</th>
<th>Sectors Differ</th>
<th>Bytes Differ</th>
<th>Diffs Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>59520825</td>
<td>59408370</td>
<td>12279000</td>
<td>0</td>
<td>12279000</td>
<td>97038336</td>
<td>0-12278999</td>
</tr>
</tbody>
</table>

Source (18656967) has 6377967 more sectors than destination (12279000)

Summary

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Partitions</th>
<th>Unallocated</th>
<th>Total Src Sectors</th>
<th>Partition Excess</th>
<th>Disk Excess</th>
<th>Total Dst Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>1</td>
<td>67607049</td>
<td>3888664</td>
<td>0</td>
<td>71687559</td>
</tr>
</tbody>
</table>

run start Wed Mar 30 10:24:15 2005
| run finish Wed Mar 30 11:30:40 2005 |
| elapsed time 1:6:25 |
| Normal exit |

**Expected results:**

`Adjcmp` creates a new log file with the default name “cmpalog.txt”. It prompts the user for a comment. It logs the comment, the drives, the program execution, the partition tables of each drive, the location, size, type of each disk chunk. It prompts the user for chunk assignment. It compares the chunks according to specification (observe whether it categorizes surplus destination sectors) and logs the results. It logs all other information required (compilation date, libraries, etc.)

| Actual results: | No anomalies detected. |
| Analysis: | Expected results achieved. |

---

### Case Acm-06

**Case summary:** Test whether `adjcmp` displays its usage mode when invoked with the `-h` option.

| Tester name: | serban |
| Test date: | Wed Mar 30 16:11:00 2005 |
| PC: | McMillan |
| Disks: | None. |

**Execute:** Run `adjcmp` with the `-h` option alone on the command line or accompanied by other arguments and capture its standard output into a file:

```
adjcmp -h > outputlog.txt
adjcmp acm-06 mcmillan serban /dev/hdb 7F /dev/sda CC -h >> outputlog.txt
```

**Log files location:** Test-archive/adjcmp/acm-06

**Log file highlights:**

- `adjcmp` Version 3.1 compiled at 19:16:46 on Mar 25 2005
- Src drive /dev/hdb dst drive /dev/sda
- Src fill 0x7F dst fill 0xCC
- Usage: adjcmp test-case host operator src-drive src-fill dst-drive dst-fill [ -options ]
- `-comment "..."` Descriptive comment
- `-layout` Print disk layout only (no compare)
- `-new_log` Start a new log file (default is append to old log file)
- `-log_name <name>` Use different log file (default is cmpalog.txt)
- `-assign` Assign corresponding regions between src
<table>
<thead>
<tr>
<th></th>
<th>and dst via dialog</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>Print this option list</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected results:</th>
<th><em>Adjcmp</em> displays its usage mode in each case.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
### 3.2.11 Sechash Test Results Summary

<table>
<thead>
<tr>
<th>Case Shs-01</th>
<th></th>
</tr>
</thead>
</table>
| **Case summary:** | Test whether **sechash**:  
- creates a new log file with the default name reflecting the **-before** option;  
- logs a one-word comment entered on the command line in the **-comment** option;  
- logs the disk drive;  
- logs the program execution;  
- logs the block of sectors for which it will compute the hash, and the type of hash;  
- computes and logs the SHA-1 hash of the entire disk when **-first**, **-last**, and **-hash** options are omitted. |
| **Tester name:** | serban |
| **Test date:** | Sat Apr 16 10:47:40 EDT 2005 |
| **PC:** | McMillan |
| **Disks:** | Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| **Execute:** | Run sechash.csh script:  
sechash.csh shs-01 mcmillan serban /dev/sda CC -before -comment HashEntireDisk |
| **Log files location:** | Test-archive/sechash/shs-01/ |
| **Log file highlights:** | hashbsec.txt:  
@(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24  
CMD: /root/Forensic/bin/sechash.csh shs-01 mcmillan serban /dev/sda CC -before -comment HashEntireDisk  
Case: shs-01  
Host: mcmillan  
User: serban  
Device: /dev/sda  
Label: CC  
Comment: HashEntireDisk  
Hash: sha1sum  
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux  
shasum (coreutils) 4.5.3  
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)  
Hash 71687370 sectors from 0 through 71687369 (dd bs=512 if=/dev/sda skip=0 count=71687370 | sha1sum |
| tr a-z A-Z >> hashbsec.txt ) >>& hashbsec.txt
| 71687370+0 records in
| 71687370+0 records out
| EB2166A130781E350C6D71001E62DC520D68CAA2
| run start Sat Apr 16 10:47:40 EDT 2005
| run finish Sat Apr 16 11:12:51 EDT 2005

Expected results: **Sechash** creates a new log file “hashbsec.txt”. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value.
It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected.

Analysis: Expected results achieved.

---

**Case Shs-02**

**Case summary:** Test whether **sechash**:
- appends the log records to an existing log file with the default name reflecting the –before option;
- logs a multi-word comment entered on the command line in the –comment option;
- logs the disk drive;
- logs the program execution;
- logs the block of sectors for which it will compute the hash, and the type of hash;
- computes and logs the MD5 hash (as specified by the –hash option) of the entire disk when the –first and –last option explicitly specify the first and last sectors of the disk.

**Tester name:** serban

**Test date:** Sat Apr 16 11:29:35 EDT 2005

**PC:** McMillan

**Disks:** Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:** Run sechash.csh script:

```
sechash.csh shs-02 mcmillan serban /dev/sda CC -before -first 0 -last 71687369 -comment "Hash Entire Disk" -hash md5sum
```

**Log files location:** Test-archive/sechash/shs-02/

**Log file highlights:** hashbsec.txt:
Expected results: 

Sechash creates a new log file “hashbsec.txt”. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value.
It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected.
Analysis: Expected results achieved.

Case Shs-03

Case summary: Test whether sechash:
-creates a log file with the default name reflecting the –after option;
-prompts the user to enter a comment;
-logs the disk drive;
-logs the program execution;
-logs the block of sectors for which it will compute the
hash, and the type of hash;
- computes and logs the SHA-1 hash (explicitly specified
by the -hash option, even though it is the default type of
hash) of the entire disk when the -first and -last option
explicitly specify the first and last sectors of the disk, and
the last byte of the disk pattern of case shs-01 was
modified by using diskchg.

| Tester name: | serban       |
| Test date:   | Sat Apr 16 11:52:14 EDT 2005 |
| PC:          | McMillan     |
| Disks:       | Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| Execute:     | Run sechash.csh script: |
|              | sechash.csh shs-03 mcmillan serban /dev/sda CC -new_log -after -first 0 -last 71687369 -hash shalsum |
| Log files location: | Test-archive/sechash/shs-03/ |
| Log file highlights: | hashasec.txt: |
|              | @(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24 |
|              | CMD: /root/Forensic/bin/sechash.csh shs-03 mcmillan serban /dev/sda CC -after -first 0 -last 71687369 -hash shalsum |
|              | Case: shs-03 |
|              | Host: mcmillan |
|              | User: serban |
|              | Device: /dev/sda |
|              | Label: CC |
|              | Comment: Compute SHA-1 for entire disk after modification |
|              | Hash: shalsum |
|              | Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux |
|              | shasum (coreutils) 4.5.3 |
|              | SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB) |
|              | Hash 71687370 sectors from 0 through 71687369 |
|              | (dd bs=512 if=/dev/sda skip=0 count=71687370 | shalsum |
|              | [ tr a-zA-Z >> hashasec.txt ] >> & hashasec.txt |
|              | 71687370+0 records in |
|              | 71687370+0 records out |
|              | 5E88403E4222EAF631E3AB97D08A0FFFFFB74FE49 - run start Sat Apr 16 11:52:14 EDT 2005 |
|              | run finish Sat Apr 16 12:17:17 EDT 2005 |

Expected results: **Sechash** creates a new log file “hashasec.txt”. It prompts
the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected. The correctness of the SHA-1 hash computed for the modified pattern has been assessed by comparing the hash to the hash computed in the test case dsh-04 of *diskhash*.

Analysis: Expected results achieved.

**Case Shs-04**

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test whether <em>sechash</em>:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-creates a log file with the default name reflecting the –after option:</td>
</tr>
<tr>
<td></td>
<td>-prompts the user to enter a comment:</td>
</tr>
<tr>
<td></td>
<td>-logs the disk drive:</td>
</tr>
<tr>
<td></td>
<td>-logs the program execution:</td>
</tr>
<tr>
<td></td>
<td>-logs the block of sectors for which it will compute the hash, and the type of hash:</td>
</tr>
<tr>
<td></td>
<td>-computes and logs the MD5 hash (explicitly specified by the –hash option) of the entire disk when the –first and –last option explicitly specify the first and last sectors of the disk, and the last byte of the disk pattern of case shs-01 or shs-02 (the pattern was the same in those cases) was modified by using <em>diskchg</em>.</td>
</tr>
</tbody>
</table>

Tester name: serban  
Test date: Sat Apr 16 12:34:38 EDT 2005  
PC: McMillan  
Disks: Target: SCSI, /dev/sda, external label “CC”. model ST336705LC, serial # 3DE03HL30008110CEHF.  
Execute: Run sechash.csh script:

```
sechash.csh shs-04 mcmillan serban /dev/sda CC -new_log -after -first 0 -last 71687369 -hash md5sum
```

Log files location: Test-archive/sechash/shs-04/  
Log file highlights: *

*hashasec.txt*:  
@(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24  
CMD: /root/Forensic/bin/sechash.csh shs-04 mcmillan serban /dev/sda CC -new_log -after -first 0 -last 71687369 -hash md5sum  
Case: shs-04
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: Hash entire disk, with modified last byte, MD5
Hash: md5sum
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux
md5sum (coreutils) 4.5.3
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
Hash 71687370 sectors from 0 through 71687369
(dd bs=512 if=/dev/sda skip=0 count=71687370 | md5sum | tr a-z A-Z >> hashasec.txt) >> & hashasec.txt
71687370+0 records in
71687370+0 records out
4E39B4D4E813A7C6A1E90637B0A281FD -
run start Sat Apr 16 12:34:38 EDT 2005
run finish Sat Apr 16 12:52:11 EDT 2005

Expected results: Sechash creates a new log file “hashasec.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected. The correctness of the MD5 hash computed for the modified pattern has been assessed by comparing the hash to the hash computed in the test case dsh-05 of diskhash.

Analysis: Expected results achieved.

Case Shs-05
Case summary: Test whether sechash:
-creates a log file with an alternate name by using the -log_name option;
-prompts the user to enter a comment;
-logs the disk drive;
-logs the program execution;
-logs the block of sectors for which it will compute the hash, and the type of hash;
-computes and logs the SHA-1 hash (explicitly specified by the -hash option) of the first sector of the disk by using
the –first and –last options.

Tester name: Serban
Test date: Sat Apr 16 13:09:49 EDT 2005
PC: McMillan
Disks: Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

Execute: Run the script cal-drive-count.csh to write a pattern on sector 0 whose SHA-1 hash is known:

cal-drive-count.csh sda 1 > output.txt

Run the script sechash.csh:

sechash.csh shs-05 mcmillan serban /dev/sda CC –log_name sechashlog.txt -first 0 -last 0 -hash shalsum

Log files location: Test-archive/sechash/shs-05/

Log file highlights: **Output.txt:**

[root@mcmillan shs-05]# cal-drive-count.csh sda 1
This script will overwrite the drive on /dev/sda
Everything on the drive /dev/sda WILL BE LOST
Do you want to continue? [yes|no] yes
1+0 records in
1+0 records out
1+0 records in
1+0 records out
MD5 should be:
9BA49A496A8BD64D9A5BD3AFE6CC1C9D -
1+0 records in
1+0 records out
SHA1 should be:
F6055F9D115056CB31E68714B75D5D41EA264B9A -

**sechashlog.txt:**

@(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24
CMD: /root/Forensic/bin/sechash.csh shs-05 mcmillan serban /dev/sda CC -log_name sechashlog.txt -first 0 -last 0 -hash shalsum
Case: shs-05
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: Compute SHA-1 for sector 0, alternate log file name
Hash: shalsum
| Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux shasum (coreutils) 4.5.3 | SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB) |
| Hash 1 sectors from 0 through 0 (dd bs=512 if=/dev/sda skip=0 count=1 | shasum | tr a-z A-Z >> sechashlog.txt) >> & sechashlog.txt |
| 1+0 records in 1+0 records out | F6055F9D115056CB31E68714B75D5D41EA264B9A |
| run start Sat Apr 16 13:09:49 EDT 2005 | run finish Sat Apr 16 13:09:49 EDT 2005 |

Expected results: **Sechash** creates a new log file “sechashlog.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.).

Actual results: No anomalies detected. The correctness of the SHA-1 hash computed for sector 0 has been assessed by comparing the hash to the hash computed by the script `cal-drive-count.csh` used to write the pattern onto sector 0.

Analysis: Expected results achieved.

---

**Case Shs-06**

**Case summary:** Test whether **sechash**:
- creates a new log file with an alternate name although a log file with the same name already exists, by using the –log_name and –new_log options;
- prompts the user to enter a comment;
- logs the disk drive;
- logs the program execution;
- logs the block of sectors for which it will compute the hash, and the type of hash;
- computes and logs the MD5 hash (explicitly specified by the –hash option) of the first sector of the disk by using the –first and –last options.

**Tester name:** Serban

**Test date:** Sat Apr 16 13:17:24 EDT 2005

**PC:** McMillan
<table>
<thead>
<tr>
<th>Disks:</th>
<th>Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Execute:</td>
<td>Run the script sechash.csh: sechash.csh shs-06 mcmillan serban /dev/sda CC -log_name sechashlog.txt -new_log -first 0 -last 0 -hash md5sum</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/sechash/shs-06/</td>
</tr>
</tbody>
</table>
| Log file highlights: | sechashlog.txt:  
@(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24  
CMD: /root/Forensic/bin/sechash.csh shs-06 mcmillan serban /dev/sda CC -log_name sechashlog.txt -new_log -first 0 -last 0 -hash md5sum  
Case: shs-06  
Host: mcmillan  
User: serban  
Device: /dev/sda  
Label: CC  
Comment: Compute MD5 hash of sector 0, new alternate log file  
Hash: md5sum  
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux md5sum (coreutils) 4.5.3  
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)  
Hash 1 sectors from 0 through 0 (dd bs=512 if=/dev/sda skip=0 count=1 | md5sum | tr a-z A-Z >> sechashlog.txt ) >> & sechashlog.txt  
1+0 records in  
1+0 records out  
9BA49A496A8BD64D9A5BD3AFE6CC1C9D -run start Sat Apr 16 13:17:24 EDT 2005  
run finish Sat Apr 16 13:17:24 EDT 2005 |
| Expected results: | **Sechash** creates a new log file “sechashlog.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.) |
| Actual results: | No anomalies detected. The correctness of the MD5 hash computed for sector 0 has been assessed by comparing the |
Case Shs-07

Case summary: Test whether sechash:
-computes and logs the SHA-1 hash (explicitly specified by the –hash option) of the last sector of the disk by using the –first and –last options.

Tester name: Serban
Test date: Sat Apr 16 14:28:09 EDT 2005
PC: McMillan
Disks: Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

Execute:
Run the script cal-drive-count-seek.csh to write a pattern on the last sector of the disk whose SHA-1 hash is known:

cal-drive-count-seek.csh sda 1 71687369 > output.txt

Run the script sechash.csh:

sechash.csh shs-07 mcmillan serban /dev/sda CC -before -new_log -first 71687369 -last 71687369

Log files location: Test-archive/sechash/shs-07/
Log file highlights:

Output.txt:
[root@mcmillan shs-07]# cal-drive-count-seek.csh sda 1 71687369
This script will overwrite the drive on /dev/sda
Everything on the drive /dev/sda WILL BE LOST
Do you want to continue? [yes\no] yes
1+0 records in
1+0 records out
1+0 records in
1+0 records out
MD5 should be:
9BA49A496A8BD64D9A5BD3AFE6CC1C9D -
1+0 records in
1+0 records out
SHA1 should be:
F6055F9D115056CB31E68714B75D5D41EA264B9A -

hasbsec.txt:
@(#) sechash.csh Linux Version 1.8 Created 03/18/05 at
11:11:24
CMD: /root/Forensic/bin/sechash.csh shs-07 mcmillan serban /dev/sda CC -before -new_log -first 71687369 -last 71687369
Case: shs-07
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: Compute SHA-1 of last sector
Hash: sha1sum
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux
shasum (coreutils) 4.5.3
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
Hash 1 sectors from 71687369 through 71687369
(dd bs=512 if=/dev/sda skip=71687369 count=1 | sha1sum | tr a-z A-Z >> hashbsec.txt) >>& hashbsec.txt
1+0 records in
1+0 records out
F6055F9D115056CB31E68714B75D5D41EA264B9A -run start Sat Apr 16 14:28:09 EDT 2005
run finish Sat Apr 16 14:28:10 EDT 2005

Expected results:
Sechash creates a new log file “hashbsec.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected. The correctness of the SHA-1 hash computed for the last sector has been assessed by comparing the hash to the hash computed by the script cal-drive-count-seek.csh used to write the pattern onto the last sector.

Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Shs-08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case summary: Test whether sechash: -computes and logs the MD5 hash (explicitly specified by the --hash option) of the last sector of the disk by using the --first and --last options.</td>
</tr>
</tbody>
</table>
Tester name: Serban
Test date: Sat Apr 16 14:39:28 EDT 2005
PC: McMillan
Disks: Target: SCSI /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL30008110CEHF.
Execute: Run the script sechash.csh:
    sechash.csh shs-08 mcmillan serban /dev/sda CC -before -new_log -first 71687369 -last 71687369 -hash md5sum
Log files location: Test-archive/sechash/shs-08/
Log file highlights:

hasbsec.txt:
@(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24
CMD: /root/Lorensic/bin/sechash.csh shs-08 mcmillan serban /dev/sda CC -before -new_log -first 71687369 -last 71687369 -hash md5sum
Case: shs-08
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: Compute MD5 hash of the last sector
Hash: md5sum
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux
md5sum (coreutils) 4.5.3
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
Hash 1 sectors from 71687369 through 71687369
(dd bs=512 if=/dev/sda skip=71687369 count=1 | md5sum | tr a-z A-Z >> hashbsec.txt ) >>& hashbsec.txt
1+0 records in
1+0 records out
9BA49A496A8BD64D9A5BD3AFE6CC1C9D -run start Sat Apr 16 14:39:28 EDT 2005
run finish Sat Apr 16 14:39:28 EDT 2005

Expected results: Sechash creates a new log file “hashbsec.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected. The correctness of the MD5 hash computed for the last sector has been assessed by
comparing the hash to the hash computed by the script `cal-drive-count-seek.csh` used to write the pattern onto the last sector – see the previous test case shs-07.

| Analysis: | Expected results achieved. |

---

**Case Shs-09**

| Case summary: | Test whether *sechash*: -computes and logs the SHA-1 hash of a group of contiguous sectors specified by the –first and –last options. |

| Tester name: | Serban |
| Test date: | Sat Apr 16 14:53:27 EDT 2005 |
| PC: | McMillan |
| Disks: | Target: SCSI /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| Execute: | Run the script `cal-drive-count-seek.csh` to write a pattern on the group of sectors, whose SHA-1 hash is known: `cal-drive-count-seek.csh` sda 1000000 10000 > output.txt Run the script `sechash.csh`: `sechash.csh` shs-09 mcmillan serban /dev/sda CC -before -new_log -first 10000 -last 1009999 -hash sha1sum |

<p>| Log files location: | Test-archive/sechash/shs-09/ |
| Log file highlights: | Output.txt: [root@mcmillan shs-09]# cal-drive-count-seek.csh sda 1000000 10000 This script will overwrite the drive on /dev/sda Everything on the drive /dev/sda WILL BE LOST Do you want to continue? [yes/no] yes 1000000+0 records in 1000000+0 records out 1000000+0 records in 1000000+0 records out MD5 should be: 031F597C5019AE207AFFE8AE86DC3236 - 1000000+0 records in 1000000+0 records out SHA1 should be: 4CF049F6E78C709651EEDD478C8E7D738B698838 - hasbsec.txt: <code>@(#) sechash.csh</code> Linux Version 1.8 Created 03/18/05 at |</p>
<table>
<thead>
<tr>
<th>Case: shs-09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host: mcmillan</td>
</tr>
<tr>
<td>User: serban</td>
</tr>
<tr>
<td>Device: /dev/sda</td>
</tr>
<tr>
<td>Label: CC</td>
</tr>
<tr>
<td>Comment: Compute SHA-1 hash for a group of sectors</td>
</tr>
<tr>
<td>Hash: shalsum</td>
</tr>
<tr>
<td>Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux</td>
</tr>
<tr>
<td>shasum (coreutils) 4.5.3</td>
</tr>
<tr>
<td>SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)</td>
</tr>
<tr>
<td>Hash 1000000 sectors from 10000 through 1009999 (dd bs=512 if=/dev/sda skip=10000 count=1000000</td>
</tr>
</tbody>
</table>

**Expected results:** *Sechash* creates a new log file “hashbsec.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.)

**Actual results:** No anomalies detected. The correctness of the SHA-1 hash computed for the specified group of sectors last sector has been assessed by comparing the hash to the hash computed by the script *cal-drive-count-seek.csh* used to write the pattern onto the specified group of sectors.

**Analysis:** Expected results achieved.

---

**Case Shs-10**

**Case summary:** Test whether *sechash*:
- computes and logs the MD5 hash of a group of contiguous sectors specified by the -first and -last options.
<table>
<thead>
<tr>
<th>Tester name:</th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Sat Apr 16 14:55:13 EDT 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run the script sechash.csh:</td>
</tr>
</tbody>
</table>

sechash.csh shs-10 mcmillan serban /dev/sda CC -before -new_log -first 10000 -last 1009999 -hash md5sum

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/sechash/shs-10/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td><strong>hashbsec.txt:</strong> @(#) sechash.csh Linux Version 1.8 Created 03/18/05 at 11:11:24 CMD: /root/Forensic/bin/sechash.csh shs-10 mcmillan serban /dev/sda CC -before -new_log -first 10000 -last 1009999 -hash md5sum Case: shs-10 Host: mcmillan User: serban Device: /dev/sda Label: CC Comment: Compute MD5 hash for a group of sectors Hash: md5sum Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003 i686 i686 i386 GNU/Linux md5sum (coreutils) 4.5.3 SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB) Hash 1000000 sectors from 10000 through 1009999 (dd bs=512 if=/dev/sda skip=10000 count=1000000</td>
</tr>
</tbody>
</table>

| Expected results:      | **Sechash** creates a new log file “hashbsec.txt”. It prompts the user for a comment. It logs the comment, the drive, the program execution, the block of sectors for which it will compute the hash, the type of hash computed, the actual number of sectors in the block, and the hash value. It logs all other information required (compilation date, libraries, etc.) |
| Actual results:        | No anomalies detected. The correctness of the MD5 hash computed for the specified group of sectors last sector has |
been assessed by comparing the hash to the hash computed by the script `cal-drive-count-seek.csh` used to write the pattern onto the specified group of sectors – see the previous test case shs-09.

**Analysis:** Expected results achieved.

---

**Case Shs-11**

**Case summary:** Test whether `sechash`
- detects that the –first value is bigger than the –last value.

**Tester name:** Serban

**Test date:** Sat Apr 16 15:05:00 EDT 2005

**PC:** McMillan

**Disks:** Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:** Run the script `sechash.csh`:

```
sechash.csh shs-11 mcmillan serban /dev/sda CC -before -new_log -first 10000 -last 9999 > output.txt
```

**Log files location:** Test-archive/sechash/shs-11/

**Log file highlights:**

```
[root@mcmillan shs-11]# sechash.csh shs-11 mcmillan serban /dev/sda CC -before -new_log -first 10000 -last 9999

Case shs-11 Host mcmillan User serban Device /dev/sda Label CC
Last sector (9999) is before first sector (10000)
usage: sechash.csh TestCase Host User Device Label [-options]
Options:
  -before Name the logfile hashblog.txt
  -after Name the logfile hashalog.txt
  -first <LBA> Start hashing at <LBA>
  -last <LBA> Stop hashing at <LBA>
  -comment <text> Record text in log
  -hash <prog_name> Use <prog_name> to compute a hash
  -new_log Create a new log file
  -log_name <name> Name the log file <name>
  -h Print this list of options
```

**Expected results:** *Sechash* detects the –first sector address is bigger than the –last sector address and issues an error message.

**Actual results:** No anomalies detected.

**Analysis:** Expected results achieved.
## Case Shs-12

| Case summary: | Test whether **sechash**: detects an invalid -first sector address, i.e., outside the LBA range of the disk. |
| Test name: | Serban |
| Test date: | Sat Apr 16 15:14:00 EDT 2005 |
| PC: | McMillan |
| Disks: | Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| Execute: | Run the script sechash.csh: |
| Log files location: | Test-archive/sechash/shs-12/ |
| Log file highlights: | **Output.txt:** |
| | [root@mcmillan shs-12] # sechash.csh shs-12 mcmillan serban /dev/sda CC -before -new_log -first 71687370 -last 71687380 > output.txt |
| | Case shs-12 Host mcmillan User serban Device /dev/sda Label CC |
| | Last sector (71687380) is after end of drive (71687370) usage: sechash.csh TestCase Host User Device Label [-options] |
| | Options: |
| | -before Name the logfile hashblog.txt |
| | -after Name the logfile hashalog.txt |
| | -first <LBA> Start hashing at <LBA> |
| | -last <LBA> Stop hashing at <LBA> |
| | -comment <text> Record text in log |
| | -hash <prog_name> Use <prog_name> to compute a hash |
| | -new_log Create a new log file |
| | -log_name <name> Name the log file <name> |
| | -h Print this list of options |
| Expected results: | **Sechash** detects the -first sector address points beyond the disk end and issues some error message. |
| Actual results: | No anomalies detected, **sechash** detects the -last value is incorrect, but we considered **sechash** passed the test because this situation cannot occur without another error that **sechash** reports. |
| Analysis: | Expected results achieved. |

## Case Shs-13

| Case summary: | Test whether **sechash**: |
-detects an invalid -last sector address, i.e., outside the LBA range of the disk.

| Tester name: | Serban |
| Test date: | Sat Apr 16 15:15:00 EDT 2005 |
| PC: | McMillan |
| Disks: | Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF. |
| Execute: | Run the script sechash.csh: sechash.csh shs-13 mcmillan serban /dev/sda CC -before -new_log -first 71687300 -last 71687380 > output.txt |
| Log files location: | Test-archive/sechash/shs-13/ |
| Log file highlights: | Output.txt: |
| | [root@mcmillan shs-13]# sechash.csh shs-13 mcmillan serban /dev/sda CC -before -new_log -first 71687300 -last 71687380 |
| | Case shs-13 Host mcmillan User serban Device /dev/sda Label CC |
| | Last sector (71687380) is after end of drive (71687370) |
| | usage: sechash.csh TestCase Host User Device Label |[-options] |
| | Options: |
| | -before Name the logfile hashblog.txt |
| | -after Name the logfile hashalog.txt |
| | -first <LBA> Start hashing at <LBA> |
| | -last <LBA> Stop hashing at <LBA> |
| | -comment <text> Record text in log |
| | -hash <prog_name> Use <prog_name> to compute a hash |
| | -new_log Create a new log file |
| | -log_name <name> Name the log file <name> |
| | -h Print this list of options |

Expected results: **Sechash** detects the -last sector address points beyond the disk end and issues some error message.

Actual results: No anomalies detected.

Analysis: Expected results achieved.

---

**Case Shs-14**

| Case summary: | Test whether **sechash** displays its usage mode when using the -h option. |
| Tester name: | Serban |
| Test date: | Sat Apr 16 15:15:00 EDT 2005 |
| PC: | McMillan |
| Disks: | None. |
| Execute: | Run the script sechash.csh without arguments, with... |
incorrect arguments, with the -h option alone on the command line, with correct arguments plus the -h option. Capture its standard output into a file:

```
Sechash.csh > output.txt
sechash.csh shs-14 mcmillan serban /dev/sda CC -before -new_log -logname >> output.txt
sechash.csh -h >> output.txt
sechash.csh shs-14 mcmillan serban /dev/sda CC -before -new_log -first 7300 -last 7380 >> output.txt
```

<table>
<thead>
<tr>
<th>Log files location:</th>
<th>Test-archive/sechash/shs-14/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log file highlights:</td>
<td>Output.txt:</td>
</tr>
<tr>
<td></td>
<td>Must select -before, -after, or -log_name &lt;name&gt;</td>
</tr>
<tr>
<td></td>
<td>usage: sechash.csh TestCase Host User Device Label [-options]</td>
</tr>
<tr>
<td></td>
<td>Options:</td>
</tr>
<tr>
<td></td>
<td>-before Name the logfile hashlog.txt</td>
</tr>
<tr>
<td></td>
<td>-after Name the logfile hashalog.txt</td>
</tr>
<tr>
<td></td>
<td>-first &lt;LBA&gt; Start hashing at &lt;LBA&gt;</td>
</tr>
<tr>
<td></td>
<td>-last &lt;LBA&gt; Stop hashing at &lt;LBA&gt;</td>
</tr>
<tr>
<td></td>
<td>-comment &lt;text&gt; Record text in log</td>
</tr>
<tr>
<td></td>
<td>-hash &lt;prog_name&gt; Use &lt;prog_name&gt; to compute a hash</td>
</tr>
<tr>
<td></td>
<td>-new_log Create a new log file</td>
</tr>
<tr>
<td></td>
<td>-log_name &lt;name&gt; Name the log file &lt;name&gt;</td>
</tr>
<tr>
<td></td>
<td>-h Print this list of options</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected results:</th>
<th>Sechash displays its usage mode in each case.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
### 3.2.12 Diskhash Test Results Summary

**Case Dhs-01**

**Case summary:** Test whether *diskhash*:
- creates a new log file with the default name reflecting the `--before` option;
- logs a one-word comment entered on the command line in the `--comment` option;
- logs the disk drive;
- logs the program execution;
- logs the type of hash;
- computes and logs the SHA-1 hash of the entire disk.

**Tester name:** Serban

**Test date:** Fri Apr 15 18:05:56 EDT 2005

**PC:** McMillan

**Disks:** Target: SCSI, `/dev/sda`, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:** Run the `cal-drive.csh` script to write on the disk a pattern whose SHA-1 and MD5 hashes are known:

```bash
cal-drive.csh sda > output.txt
```

Run `diskhash.csh` script:

```bash
diskhash.csh dhs-01 mcmillan serban /dev/sda CC -before -comment HashDisk -hash sha1sum
```

**Log files location:** `Test-archive/diskhash/dhs-01/`

**Log file highlights:**
- **Output.txt:**
  
  ```
  [root@mcmillan diskhash]# cal-drive.csh sda /dev/sda has 71687370 sectors
  This script will overwrite the drive on /dev/sda
  Everything on the drive /dev/sda WILL BE LOST
  Do you want to continue? [yes|no] yes
  71687370+0 records in
  71687370+0 records out
  
  71687370+0 records in
  71687370+0 records out
  MD5 should be: 9CF850670C1A43AF810093F7758C0277 -
  MD5 on drive is: 9CF850670C1A43AF810093F7758C0277 -
  71687370+0 records in
  71687370+0 records out
  SHA1 should be:
  E82166A130781E350C6D71001E62DC520D68CAA2 -
  ```
SHA1 on drive is:
EB2166A130781E350C6D71001E62DC520D68CAA2 -

hashblog.txt:
@(#) diskhash.csh Linux Version 1.7 Created 03/18/05 at 11:11:24
CMD: /root/Forensic/bin/diskhash.csh dhs-01 mcmillan serban /dev/sda CC -before -comment HashDisk -hash sha1sum
Case: dhs-01
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: HashDisk
Hash: sha1sum
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003
i686 i686 i386 GNU/Linux
shasum (coreutils) 4.5.3
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
(dd bs=512 if=/dev/sda | sha1sum | tr a-z A-Z >> hashblog.txt ) >>& hashblog.txt
71687370+0 records in
71687370+0 records out
EB2166A130781E350C6D71001E62DC520D68CAA2 -
run start Fri Apr 15 18:05:56 EDT 2005
run finish Fri Apr 15 18:30:49 EDT 2005

Expected results: **Diskhash** creates a new log file “hashblog.txt”. It logs the comment, the drive, the program execution, the type of hash computed, the actual number of disk sectors, computes the SHA-1 hash and logs the hash value. It logs all other information required.

Actual results: No anomalies detected. The correctness of the SHA-1 hash computed for the specified disk drive has been assessed by comparing the hash to the hash computed by the script call-drive.csh used to write the pattern onto the disk.

Analysis: Expected results achieved.

Case Dhs-02
Case summary: Test whether **diskhash**:
- appends the log records to an existing log file;
- logs a multi-word comment entered on the command line in the
-comment option;
-logs the disk drive;
-logs the program execution;
-logs the type of hash;
-computes and logs the MD5 hash of the entire disk.

<table>
<thead>
<tr>
<th>Tester name:</th>
<th>Serban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Sat Apr 16 08:57:33 EDT 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run diskhash.csh script:</td>
</tr>
<tr>
<td></td>
<td>diskhash.csh dhs-02 mcmillan serban /dev/sda CC -before -comment &quot;Test MD5 hash&quot; -hash md5sum</td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskhash/dhs-02/</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td>hashblog.txt:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>-----Log records of the previous case, followed by-----</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>@(#) diskhash.csh Linux Version 1.7 Created 03/18/05 at</td>
</tr>
<tr>
<td></td>
<td>11:11:24</td>
</tr>
<tr>
<td></td>
<td>CMD: /root/Forensic/bin/diskhash.csh dhs-02 mcmillan serban</td>
</tr>
<tr>
<td></td>
<td>/dev/sda CC -before -comment &quot;Test MD5 hash&quot; -hash md5sum</td>
</tr>
<tr>
<td></td>
<td>Case: dhs-02</td>
</tr>
<tr>
<td></td>
<td>Host: mcmillan</td>
</tr>
<tr>
<td></td>
<td>User: serban</td>
</tr>
<tr>
<td></td>
<td>Device: /dev/sda</td>
</tr>
<tr>
<td></td>
<td>Label: CC</td>
</tr>
<tr>
<td></td>
<td>Comment: Test MD5 hash</td>
</tr>
<tr>
<td></td>
<td>Hash: md5sum</td>
</tr>
<tr>
<td></td>
<td>Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003</td>
</tr>
<tr>
<td></td>
<td>i686 i686 i386 GNU/Linux</td>
</tr>
<tr>
<td></td>
<td>md5sum (coreutils) 4.5.3</td>
</tr>
<tr>
<td></td>
<td>SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)</td>
</tr>
<tr>
<td></td>
<td>(dd bs=512 if=/dev/sda</td>
</tr>
<tr>
<td></td>
<td>&gt;&gt; &amp; hashblog.txt</td>
</tr>
<tr>
<td></td>
<td>71687370+0 records in</td>
</tr>
<tr>
<td></td>
<td>71687370+0 records out</td>
</tr>
<tr>
<td></td>
<td>9CF850670C1A43AF810093F7758C0277 -</td>
</tr>
<tr>
<td></td>
<td>run start Sat Apr 16 08:57:33 EDT 2005</td>
</tr>
<tr>
<td></td>
<td>run finish Sat Apr 16 09:15:11 EDT 2005</td>
</tr>
</tbody>
</table>

| Expected results: | Diskhash appends the log records to the existing log file |
|                   | "hashblog.txt" created in the previous case. It logs the |
|                   | comment, the drive, the program execution, the type of hash |
|                   | computed, the actual number of disk sectors, computes the |
SHA-1 hash and logs the hash value. It logs all other information required.

Actual results: No anomalies detected. The correctness of the MD5 hash computed for the specified disk drive has been assessed by comparing the hash to the hash computed by the script *cal-drive.csh* used to write the pattern onto the disk – see previous case dhs-01.

Analysis: Expected results achieved.

<table>
<thead>
<tr>
<th>Case Dhs-03</th>
</tr>
</thead>
</table>
| **Case summary:** Test whether *diskhash*:  
- creates a new log file although a file with the same name already exists;  
- prompts the user for a comment and logs it;  
- logs the disk drive;  
- logs the program execution;  
- logs the type of hash;  
- computes and logs the SHA1 hash of the entire disk.  
| **Tester name:** Serban  
| **Test date:** Sat Apr 16 09:25:02 EDT 2005  
| **PC:** McMillan  
| **Disks:** Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.  
| **Execute:** Run diskhash.csh script:  

diskhash.csh dhs-03 mcmillan serban /dev/sda CC -before -new_log -hash shalsum  
| **Log files location:** Test-archive/diskhash/dhs-03/  
| **Log file highlights:** hashblog.txt:  
@(#) diskhash.csh Linux Version 1.7 Created 03/18/05 at 11:11:24  
CMD: /root/Forensic/bin/diskhash.csh dhs-03 mcmillan serban /dev/sda CC -before -new_log -hash shalsum  
Case: dhs-03  
Host: mcmillan  
User: serban  
Device: /dev/sda  
Label: CC  
Comment: Interactive comment, shalsum again, new log file  
Hash: shalsum  
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003  
i686 i686 i386 GNU/Linux  
shasum (coreutils) 4.5.3  
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
(dd bs=512 if=/dev/sda | sha1sum | tr a-z A-Z >> hashblog.txt)  
>>& hashblog.txt  
71687370+0 records in  
71687370+0 records out  
EB2166A130781E350C6D71001E62DC520D68CAA2 -run start Sat Apr 16 09:25:02 EDT 2005  
run finish Sat Apr 16 09:49:59 EDT 2005

Expected results:  
*Diskhash* creates a new log file “hashblog.txt” although a file with the same name already exists. Prompts the user for a comment, logs the comment, the drive, the program execution, the type of hash computed, the actual number of disk sectors, computes the SHA-1 hash and logs the hash value. It logs all other information required (compilation date, libraries, etc.)

Actual results:  
No anomalies detected. The correctness of the SHA-1 hash computed for the disk drive was assessed by comparing the hash to the hash computed by the script *cal-drive.csh* used to write the pattern onto the disk – see case dhs-01.

Analysis: Expected results achieved.

---

**Case Dhs-04**

**Case summary:**  
Test whether *diskhash*:
- creates a log file with the name reflecting the -after option;
- prompts the user for a comment and logs it;
- logs the disk drive;
- logs the program execution;
- logs the type of hash;
- computes and logs the SHA1 hash of the disk drive used in the previous case(s) after the last byte of the last sector was modified.

**Tester name:** Serban  
**Test date:** Sat Apr 16 09:25:02 EDT 2005  
**PC:** McMillan  
**Disks:** Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.

**Execute:** Run diskhash.csh script:

diskhash.csh dhs-04 mcmillan serban /dev/sda CC -after -new_log

**Log files location:** Test-archive/diskhash/dhs-04/  
**Log file highlights:**  
hashalog.txt:  
@(#) diskhash.csh Linux Version 1.7 Created 03/18/05 at 11:11:24
CMD: /root/Forensic/bin/diskhash.csh
dhs-04 serban /dev/sda CC -after -new_log
Case: dhs-04
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: Hash after change
Hash: shalsum
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003
i686 i686 i386 GNU/Linux
shasum (coreutils) 4.5.3
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
(dd bs=512 if=/dev/sda | shasum | tr a-z A-Z >> hashalog.txt
) >& hashalog.txt
71687370+0 records in
71687370+0 records out
5E88403E4222EAF631E3AB97D08A0FFFB74FE49
run start Sat Apr 16 09:55:52 EDT 2005
run finish Sat Apr 16 10:20:58 EDT 2005

Expected results: Diskhash creates a new log file “hashalog.txt”. Prompts the user for a comment, logs the comment, the drive, the program execution, the type of hash computed – SHA1, the actual number of disk sectors, computes the SHA-1 hash and logs the hash value.
It logs all other information required.

Actual results: No anomalies detected. We cannot assess the correctness of the SHA-1 hash computed for the specified disk drive after modifying its contents. We only can verify that the computed hash value is different from the one recorded by the script caldrive.csh or by diskhash in the previous case.

Analysis: Expected results achieved.

Case Dhs-05
Case summary: Test whether diskhash:
- creates a log file with the alternate name specified in the –log_name option;
- prompts the user for a comment and logs it;
- logs the disk drive;
- logs the program execution;
- logs the type of hash;
- computes and logs the MD5 hash of the specified disk drive.
Tester name: Serban
Test date: Sat Apr 16 10:24:39 EDT 2005
PC: McMillan
Disks: Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.
Execute: Run diskhash.csh script:

diskhash.csh dhs-05 mcmillan serban /dev/sda CC -log_name diskhashlog.txt -hash md5sum

Log files location: Test-archive/diskhash/dhs-05/
Log file highlights: diskhashlog.txt:
@(#) diskhash.csh Linux Version 1.7 Created 03/18/05 at 11:11:24
CMD: /root/Forensic/bin/diskhash.csh dhs-05 mcmillan serban /dev/sda CC -log_name diskhashlog.txt -hash md5sum
Case: dhs-05
Host: mcmillan
User: serban
Device: /dev/sda
Label: CC
Comment: Compute MD5 hash after modification
Hash: md5sum
Linux mcmillan 2.4.20-8 #1 Thu Mar 13 17:54:28 EST 2003
i686 i686 i386 GNU/Linux
md5sum (coreutils) 4.5.3
SCSI device sda: 71687370 512-byte hdwr sectors (36704 MB)
(dd bs=512 if=/dev/sda [ md5sum ] tr a-z A-Z >> diskhashlog.txt ) >>& diskhashlog.txt
71687370+0 records in
71687370+0 records out
4E39B4D4E813A7C6A1E90637B0A281FD -
run start Sat Apr 16 10:24:39 EDT 2005
run finish Sat Apr 16 10:43:39 EDT 2005

Expected results: Diskhash creates a new log file “diskhashlog.txt”. Prompts the user for a comment, logs the comment, the drive, the program execution, the type of hash computed, the actual number of disk sectors, computes the MD5 hash and logs the hash value. It logs all other information required (compilation date, libraries, etc.)

Actual results: No anomalies detected. The correctness of the MD5 hash computed for the disk drive has been assessed by comparing the hash to the hash computed by the script cal-drive.csh used to write the pattern onto the disk – see case dhs-01.

Analysis: Expected results achieved.
**Case Dhs-06**

<table>
<thead>
<tr>
<th>Case summary:</th>
<th>Test whether <em>diskhash</em> displays its usage mode when invoked with the <code>-h</code> option.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester name:</td>
<td>Serban</td>
</tr>
<tr>
<td>Test date:</td>
<td>Sat Apr 16 10:24:39 EDT 2005</td>
</tr>
<tr>
<td>PC:</td>
<td>McMillan</td>
</tr>
<tr>
<td>Disks:</td>
<td>Target: SCSI, /dev/sda, external label “CC”, model ST336705LC, serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td>Execute:</td>
<td>Run <code>diskhash.csh</code> script without arguments, with incorrect arguments, with the <code>-h</code> option alone on the command line, and with correct arguments plus the <code>-h</code> option. Capture its standard output into a file:</td>
</tr>
<tr>
<td></td>
<td><code>diskhash.csh &gt; output.txt</code></td>
</tr>
<tr>
<td></td>
<td><code>diskhash.csh dhs-05 mcmillan serban /dev/sda CC -logname</code></td>
</tr>
<tr>
<td></td>
<td><code>&gt;&gt; output.txt</code></td>
</tr>
<tr>
<td></td>
<td><code>diskhash.csh -h &gt;&gt; output.txt</code></td>
</tr>
<tr>
<td></td>
<td><code>diskhash.csh dhs-05 mcmillan serban /dev/sda CC -log_name</code></td>
</tr>
<tr>
<td></td>
<td><code>diskhashlog.txt -hash md5sum -h &gt;&gt; output.txt</code></td>
</tr>
<tr>
<td>Log files location:</td>
<td>Test-archive/diskhash/dhs-06/</td>
</tr>
<tr>
<td>Log file highlights:</td>
<td>output.txt: Must select <code>-before</code>, <code>-after</code>, or <code>-log_name &lt;name&gt;</code> usage: <code>diskhash.csh TestCase Host User Device Label [-options]</code> Options:</td>
</tr>
<tr>
<td></td>
<td><code>-before</code> Name the logfile hashblog.txt</td>
</tr>
<tr>
<td></td>
<td><code>-after</code> Name the logfile hashalog.txt</td>
</tr>
<tr>
<td></td>
<td><code>-comment &lt;text&gt;</code> Record text in log</td>
</tr>
<tr>
<td></td>
<td><code>-hash &lt;prog_name&gt;</code> Use &lt;prog_name&gt; to compute a hash</td>
</tr>
<tr>
<td></td>
<td><code>-new_log</code> Create a new log file</td>
</tr>
<tr>
<td></td>
<td><code>-log_name &lt;name&gt;</code> Name the log file &lt;name&gt;</td>
</tr>
<tr>
<td></td>
<td><code>-h</code> Print this list of options</td>
</tr>
<tr>
<td>Expected results:</td>
<td><em>Diskhash</em> displays its usage mode in each case.</td>
</tr>
<tr>
<td>Actual results:</td>
<td>No anomalies detected.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>
### 3.2.13 Disk Logging Test Results Summary

Disk logging examines the result of three previous test cases, dkw-01, dkw-04, and dkw-09, to test that hard disk drives are logged correctly.

<table>
<thead>
<tr>
<th>Case Dkw-01</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong></td>
<td>Test whether the disk geometry, model number, and serial number are correctly reported for SCSI drives.</td>
</tr>
<tr>
<td><strong>Tester name:</strong></td>
<td>Serban</td>
</tr>
<tr>
<td><strong>Test date:</strong></td>
<td>Thu Mar 31 11:23:03 2005</td>
</tr>
<tr>
<td><strong>PC:</strong></td>
<td>Mcmillan</td>
</tr>
<tr>
<td><strong>Disks:</strong></td>
<td>Destination: /dev/sda, external label “CC”, model ST336705LC serial # 3DE03HL300008110CEHF.</td>
</tr>
<tr>
<td><strong>Execute:</strong></td>
<td>Boot to Red Hat Linux (OS on disk labeled 81). Run command: diskwipe dkw-01 mcmillan serban /dev/sda CC -comment Wipeout</td>
</tr>
<tr>
<td><strong>Log files location:</strong></td>
<td>Test-archive/diskwipe/dkw-01/</td>
</tr>
<tr>
<td><strong>Log file highlights:</strong></td>
<td><strong>Wipedlog.txt:</strong></td>
</tr>
</tbody>
</table>

...  
Wipe Drive /dev/sda  
04461/254/63 (max cyl/hd values)  
04462/255/63 (number of cyl/hd)  
71687370 total number of sectors  
Non-IDE disk  
Model (ST336705LC ) serial # (3DE03HL300008110CEHF)  
71687370 sectors wiped with CC  
run start Thu Mar 31 11:23:03 2005  
run finish Thu Mar 31 12:20:09 2005  
elapsed time 0:57:6  
Normal exit  

**Expected results:** The tool logs disk’s model and serial numbers, reasonable geometry numbers (maximum number of cylinders, heads, sectors/track, and total number of sectors), and the type of interface (IDE/non-IDE).  

**Actual results:** No anomalies detected. The geometry, model and serial number, and interface reported coincide with those reported by the Linux OS at boot time.  

**Analysis:** Expected results achieved.

<table>
<thead>
<tr>
<th>Case Dkw-04</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case summary:</strong></td>
<td>Test whether the disk geometry, model number, and serial</td>
</tr>
</tbody>
</table>
**Tester name:** Serban  
**Test date:** Mar 31 16:24:14 2005  
**PC:** Mcmillan  
**Disks:** Source: /dev/hdb, external label “7F”, model MAXTOR 6L040J2 serial # 662201137770  
**Execute:** Run `diskwipe`:
`diskwipe dkw-04 mcmillan serban /dev/hdb 7F -src -noask`

**Log files location:** Test-archive/diskwipe/dkw-04

**Log file highlights:**

\[
\text{Wipeslog.txt:}
\]

\[
\ldots
\]

Wipe Drive /dev/hdb
04865/254/63 (max cyl/hd values)
04866/255/63 (number of cyl/hd)
78177792 total number of sectors
IDE disk: Model (MAXTOR 6L040J2) serial #
(662201137770)
78177792 sectors wiped with 7F
run start Thu Mar 31 16:24:14 2005
run finish Thu Mar 31 17:23:32 2005
elapsed time 0:59:18
Normal exit

**Expected results:**
The tool logs disk’s model and serial numbers, reasonable geometry numbers (maximum number of cylinders, heads, sectors/track, and total number of sectors), and the type of interface (IDE/non-IDE).

**Actual results:**
No anomalies detected. The geometry, model and serial number, and interface reported coincide with those reported by the Linux OS at boot time.

**Analysis:**
Expected results achieved.

---

**Case Dkw-09**

**Case summary:** Test whether the disk geometry, model number, and serial number are correctly reported for SATA drives.

**Tester name:** Serban  
**Test date:** Mon Mar 28 15:44:48 2005  
**PC:** Frank  
**Disks:** Destination: /dev/sda, external label “10B”, model WDC WD2500JD-22F, serial # WD-WMAEH2677545.

**Execute:** Run `diskwipe`:
`diskwipe dkw-09 frank serban /dev/sda AA -new_log -noask`

**Log files location:** Test-archive/diskwipe/dkw-09

**Log file highlights:**

\[
\text{dkwlog.txt:}
\]
Wipe Drive /dev/sda
30400/254/63 (max cyl/hd values)
30401/255/63 (number of cyl/hd)
488397168 total number of sectors
Non-IDE disk
Model (WDC WD2500JD-22F) serial # (WD-WMAEH2677545)
488397168 sectors wiped with AA
run start Mon Mar 28 15:44:48 2005
run finish Mon Mar 28 20:10:10 2005
elapsed time 4:25:22
Normal exit

<table>
<thead>
<tr>
<th>Expected results:</th>
<th>The tool logs disk’s model and serial numbers, reasonable geometry numbers (maximum number of cylinders, heads, sectors/track, and total number of sectors), and the type of interface (IDE/non-IDE).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual results:</td>
<td>No anomalies detected. The geometry, model and serial number, and interface reported coincide with those reported by the Fedora Core 3 OS at boot time.</td>
</tr>
<tr>
<td>Analysis:</td>
<td>Expected results achieved.</td>
</tr>
</tbody>
</table>